PULP & PAPER

JULY 1959

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COATED BOARD
3,475,850 TONS

MACHINE COATED PRINTING PAPERS
2,291,000 TONS

Big Growth in Coating

see report on Coating Conference
page 52

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the Papermaker's Profit Protector

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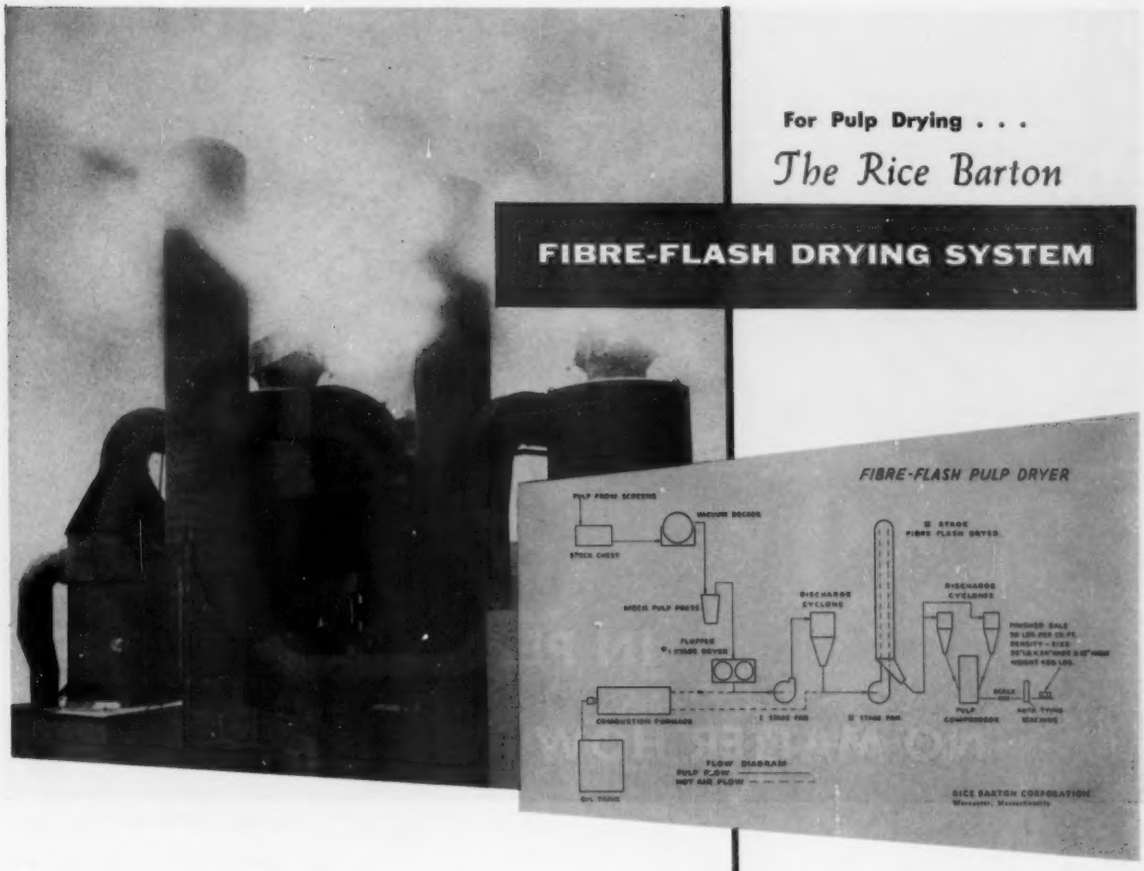

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VICKERY FELT CONDITIONERS

PULP & PAPER

Reader's Guided Tour

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A Report from Soviet Russia; Shhhhhh . . . Coating Secrets; It's a Grand Old Industry

The Editor Reports from Soviet Russia 47

Here's a report of considerable significance in light of the growing One-World character of our industry. P&P's editor meets with the top pulp and paper men in Russia, has a frank discussion with them as to their plans; also gets to see Russia's new dry process paper machine and visits a condenser paper mill. A frank report by a trained observer, illustrated with his own photographs.

Coating Keeps Growing 52

There was a record turnout (801 to be exact) at TAPPI's Tenth Coating Conference, in Boston. Highlights included capacity statistics on coated paperboard, the new Kohler coater, discussions of off- or on-machine coating, and of course, the ever popular trailing blade coater. For the first time, details on the Swiss Steinemann pressure-curtain coater are presented.

ON OUR COVER: First publication of figures showing that coated board now exceeds machine coated printing papers.

Age of Radioisotopes Is With Us 56

Here is a special feature on three applications of isotopes in our industry; in the measurement of basis weight of the paper web, measurement of height or level of material inside storage tanks, and measurement of specific gravity of certain chemical flows.

Plenty from Twenty 62

Credit this catchy headline to Southern Editor Bill Diehl who writes and illustrates this story on Champion's No. 20 machine. Said to be the largest (246-in.) and fastest fine paper machine in the world, Twenty can produce up to 100,000 tons a year.

Five "Little Machines" 70

The Stevens Former has worked so well for Crown Zellerbach that they have now five machines in mills in California metropolitan areas. P&P's Western Editor Louis Blackerby writes this story on the latest "Little Machine" at Antioch and how it has been improved, plus some good data on its versatile electrical control center.

CIRCULATION DEPT., 500 Howard St., San Francisco 5, Calif. C. C. Baake, Circ. Mgr. Send subscription orders and changes of address to PULP & PAPER, above address. Include both old and new addresses.

RATES (including World Review Number): U.S., Canada and Latin America—1 yr., $5; 2 yrs., $8; 3 yrs., $10. Other countries—1 yr., $7. Sterling area orders may be sent to: Harold P. deLooze Ltd., 7 St. James Square, Manchester 2, England.

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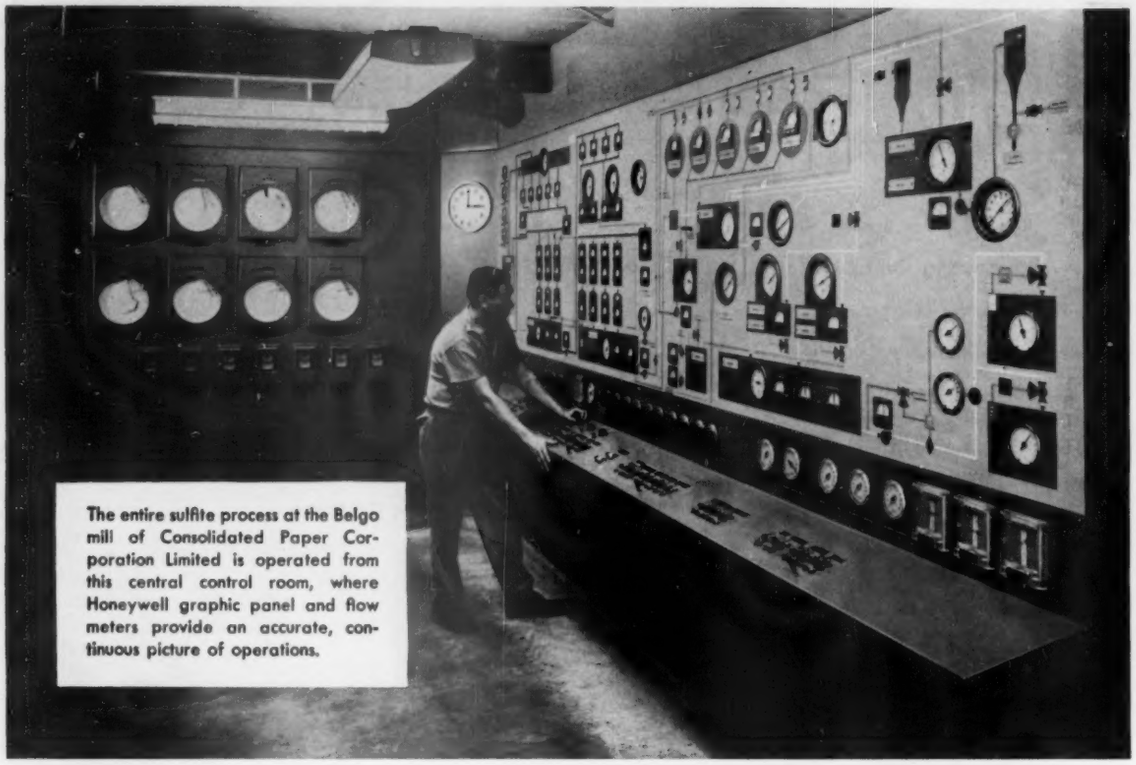

The entire sulfite process at the Belgo mill of Consolidated Paper Corporation Limited is operated from this central control room, where Honeywell graphic panel and flow meters provide an accurate, continuous picture of operations.

Consolidated Paper Corp., Ltd., increases yield with new, Honeywell-controlled sulfite process

The new high-yield sulfite process is bringing a 20% production increase, a 30% chemical saving, and a great reduction in steam use to Consolidated's Belgo Division, Shawinigan, Quebec, Canada. This commercial application of the process features a complete Honeywell control system.

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The Editor Reads His Mail

Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

Recreational Use of Private Lands

—New York, N.Y.

Editor. The editorial on the last page of the June issue of PULP & PAPER is timely and very much to the point in urging industry to tell what it is doing in aiding and guiding recreational use of private lands. Twice in the past five years this subject has been a major topic of at least one session of the annual meetings of the American Pulpwood Association. Recreational use of private forest lands is, and will be, of increasing importance and must be planned for, conducted and explained and presented to the public constantly.

The issue of charging for use of recreational facilities on private lands is as controversial, in many aspects, as this same issue is on public forest lands. The balance of feeling and of power among managers of private lands probably leans to charges at cost, with some urging a reasonable profit. That is to be expected and understandable of organizations established and maintained as private enterprises.

A strong body of other managers feel that the improved relations with the public and local citizens outweighs any monetary returns that might be gained by charging for facilities. There is room for healthy argument, but the need for careful study of the question must be understood since the development of clearcut and comprehensive policies will be more evident as industry comes in closer contact with the demands for recreational use of private as well as public lands.

W. S. BROMLEY
Executive Secretary
American Pulpwood Association

. . . for Exceptional Service to Safety

—Chicago, Ill.

Editor. It is my pleasure to inform you that your organization has been voted the National Safety Council's Public Interest Award for 1958.

We here at the Council know all you have been doing for safety, and we are delighted that the judges agreed. . . .

. . . It (the award) is designed to allow us to express in tangible form our appreciation for exceptional service to safety.

I am sure you feel, as we do, that there is another dividend as a result of your safety efforts—the knowledge that you have helped prevent many accidents.

Many thanks for your support.
HOWARD PYLE
President
National Safety Council

Editor's Note. PULP & PAPER is most gratified to learn that our ever-present interest in pulp and paper mill safety measures has earned this recognition.

"Good Conception of Our Equipment"

—Dalton, Mass.

Editor. We have read with interest the article on Crane & Company in the June issue of PULP & PAPER. It gave a good conception of our present day equipment and we appreciate the effort put in on it.

GILBERT D. KITTREDGE
General Supt.
Crane & Company, Inc.

MEETING DATES CALENDAR

June 28-July 3
Forest Products Research Society, 13th National Meeting—"Research for Profit"
St. Francis Hotel, San Francisco, Cal.

August 17-21
10th TAPPI Testing Conference
Multnomah Hotel, Portland, Ore.

September 10-12
Wood Industries Conference (sponsored by the American Society of Mechanical Engineers, the Forest Products Research Society and the American Institute of Chemical Engineers)
Multnomah Hotel, Portland, Ore.

September 9-11
Fundamental Research-Wet Strength Conference
Institute of Paper Chemistry, Appleton, Wis.

September 15-17
9th TAPPI Corrugated Containers Conference
Jung Hotel, New Orleans, La.

September 21-23
14th TAPPI Paper-Plastics Conference
Edgewater Beach Hotel, Chicago, Ill.

October 12-15
14th TAPPI Engineering Conference
Penn-Sheraton Hotel, Pittsburgh, Pa.

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MONTHLY REPORT – WORLD NEWS

RUSSIA ORDERS SWEDISH MACHINES . . . AB Karlstads Mekaniska Werkstad of Karlstad, Sweden, will build three paper machines for the Soviet Union. Two units will produce kraft liner, while the third is to be for the manufacture of bag paper. The latter will be the largest in Europe and of approximately the same size as KMW's largest newsprint units.

EXPANSION IN CANADA . . . where St. Lawrence Corp. Ltd. has purchased West Virginia Pulp & Paper Co.'s majority stock interest in Hinde & Dauch Paper Co. of Canada Ltd. West Virginia (of New York, N. Y., U. S. A.) obtained its interest in H&D of Canada in 1953, when it acquired the parent firm, Hinde & Dauch Paper Co., Sandusky, Ohio.

UNITED STATES PAPER AND BOARD PRODUCTION . . . during March–amounting to 2,847,114 tons (2,582,332 metric)—was 3% above the all-time March peak (1956); also, 12% higher than the 2,533,443 (2,297,833 metric) produced a year ago.

NEWSPRINT MACHINE FOR FINLAND . . . where Myllykoski Paper Mills Ltd. will install a high-speed unit with an annual production of 77,000 tons (70,000 metric). The unit is being built by Valmet Oy of Helsinki.

WESTERN UNITED STATES EXPANSION . . . where Georgia-Pacific Paper Co. will double production at its Toledo, Ore. mill. Construction of a second paper machine is underway; production is expected by mid-1960. . . . The firm will also construct a pulp and paper mill at Samoa, Cal. The plant will utilize waste fiber from G-P's forest products operations in the Eureka-Samoa area.

EXPANSION "DOWN UNDER" . . . where Australian Paper Manufacturers Ltd. will spend $3,375,000 (£1,500,000) to double the capacity of its Petrie mill in Queensland. The plant produces container materials and boxboards. The project involves the installation of the new Inverform wet end on the present machine. Also, the addition of dryers and stock preparation equipment, for which provision was made in the original layout. [The Inverform wet end was developed by St. Anne's Board Mill Co. Ltd., Bristol, England, and is manufactured by Walmsley's (Bury) Ltd.] . . . APM has also reported that its No. 1 machine at Maryvale—due for completion early next year—will be extended to boost capacity by at least 20%.

BRAZILIAN NEWSPRINT EXPANSION . . . where Industrias Klabin do Parana de Cellulose SA has completed a major improvement project at its Monte Alegre mill. Newsprint production has been stepped up to 175 tons (159 metric) per day. Planned for 1960-62: installation of a third newsprint machine.

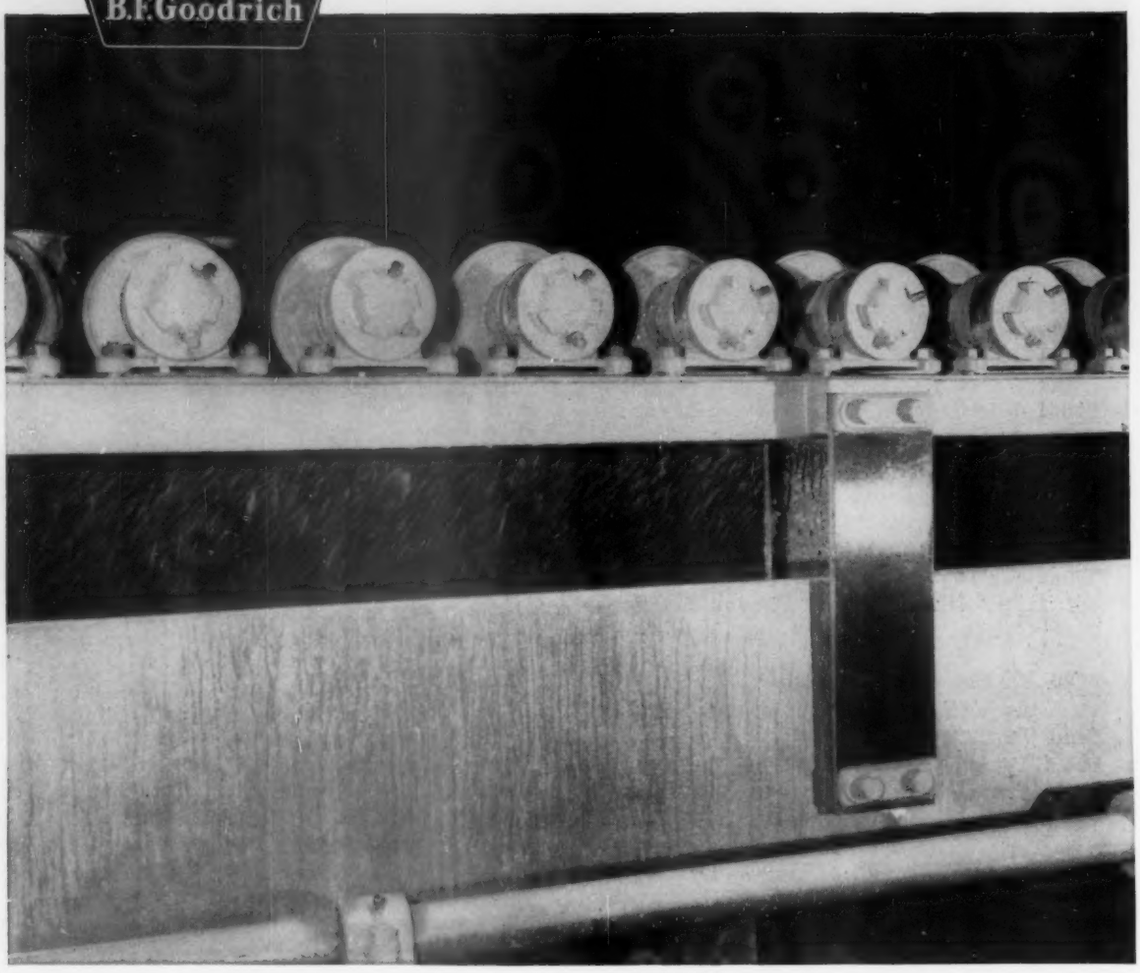
UNITED STATES NEWSPRINT CONSUMPTION . . . "appears to be resuming its upward march after lagging slightly below trend for the past two years," according to the Newsprint Information Committee. As against a long-term year-to-year increase of 3%, it has been estimated that 1959 U. S. usage will be 5% greater than last year. . . . Meanwhile, maintenance of capacity continues to be a drain on earnings. For 21 leading manufacturers average net earnings declined in 1958 for the second straight year.

AGREEMENT IN SCANDINAVIA . . . where paper producers will continue the current limitation of output during the third quarter. Observers are hopeful that the action will result in stabilizing the underlying pulp and paper marketing structure in Europe.

PULP WILL BE A PRINCIPAL SOURCE OF TURPENTINE . . . long before 1975, according to Ernest H. Holdman, former vice pres. and gen. mgr. of the International div. of Heyden-Newport Chemical Corp. Sulfate wood turpentine now accounts for more than 50% of the crude turpentine produced in the U. S.

HIGH TAXATION AND OTHER COSTS . . . are a severe burden to Canada's pulp and paper

B.F.Goodrich



Spotting stops when water goes down, not around

THOSE B.F.Goodrich Dukbak table rolls shed water fast, throw it down and away, not back up against the wire. Even rolls running at 1000 feet a minute need no deflectors. As a result water is removed more uniformly, there's no danger of water spotting the sheet, paper formation is improved.

B.F.Goodrich Dukbak rolls are dynamically balanced to prevent whipping even at highest speeds. They are ground straight and true, move evenly with the wire without developing high or low spots. The sheet that's produced is smooth, uniform.

In addition to better performance, B.F.Goodrich Dukbak table rolls have many other cost-saving advantages. Cover separation is impossible because the rubber is locked to steel by the patented Vulcalock process, the strongest rubber-to-steel adhesion known today. Corrosion is impossible because the ends are sealed against moisture. And, after years of hard service, Dukbak rolls can be reground as good as new.

Let a B.F.Goodrich man show you how these longer-lasting rolls can improve the quality of your paper. And if you are buying a new fourdrinier, or having one rebuilt, be sure to specify B.F.Goodrich Dukbak to your machine builder. *B.F.Goodrich Industrial Products Company, Department M-622, Akron 18, Ohio.*

B.F.Goodrich *paper mill rolls*

MONTHLY REPORT – WORLD NEWS

industry, but they won't halt expansion. This view was expressed recently by Vernon E. Johnson, president of Canadian International Paper Co., and by Robert M. Fowler, president of the Canadian Pulp & Paper Assn. . . . Same Subject, Different View: D. W. Ambridge, president of Abitibi Power & Paper Co. Ltd., has told a parliamentary committee in Ottawa that Ontario taxes are so excessive that Abitibi would spend no more on plant; that high taxation has been an important influence in his firm's expansion in the United States.

FOR LONG-RANGE BUSINESS PLANNING . . . a new study by the Chamber of Commerce of the United States indicates that "the danger of serious depressions has been greatly relieved, and that still further progress in taming the business cycle is likely."

FRENCH INDUSTRY FOLLOWS FRENCH ECONOMY. . . . No decisive trend emerged in the French paper market in the first quarter of 1959. Consumption showed neither a large increase nor a marked fall. "In this respect," according to a British publication, "the paper and board industry followed the general trend of the French economy."

INCREASING USE OF HARDWOODS . . . in the manufacture of pulp and paper "is brightening the market outlook for many United States tree farmers," according to American Forest Products Industries Inc. While over-all consumption of pulpwood in 1958 dropped 1% under 1957, most regions showed rather large increases in the use of hardwoods.

MAJOR EXPANSION AT ROME, GA., U.S.A. . . . where Rome Kraft Co. will add more than 500 tons of container board production with the installation of a 254-in. Beloit Iron Works machine in addition to new pulp facilities and power services.

OWNERSHIP CHANGE IN SWEDEN . . . where Rottneros Bruk AB will "hire" the groundwood mill now being erected at Gota by Uddeholms AB and acquire ownership of Uddeholms' Gota sulfite mill. (The latter was badly damaged by a landslide in 1957.) The groundwood mill will have an annual capacity of 44,000 tons (40,000 metric), dry weight, of wet mechanical pulp. The sulfite mill will have an eventual annual production of 27,500 tons (25,000 metric).

RUSSIAN MACHINE MODERNIZATION . . . has been described in a recent issue of Bumashnaya Promyshlennost, the Soviet paper industry journal: (1) The rebuilding must not reduce production for more than one year (in extreme cases, two); (2) prior to modernization, due regard should be paid to such factors as sufficient water supply and easily-accessible raw materials, and (3) spare parts should be standardized and in adequate supply.

GROWING USE OF EXTENSIBLE KRAFT PAPER FOR MULTIWALL BAGS . . . in the United States feed industry has been shown in a spot survey conducted recently at the annual convention of the American Feed Manufacturers Assn. Three out of four questioned indicated that either they are now using such bags or would switch from natural kraft in the near future.

LOOKING AT PULP & PAPER ON THE INTERNATIONAL SCENE . . . Dieter O. Muller-Clem of Ravensburg, W. Germany, has joined Clupak Inc. as the United States company's representative for continental Europe. (Clupak handles licensing, promotion and research for a new patented process whereby paper is made extensible or stretchable.) . . . Tetra-Pak throw-away paper milk containers have been introduced in 31 countries only six years after the first milk-packaging machine was installed at Lund, Sweden. . . . Scannews, an association that represents virtually all newsprint producers in Norway, Sweden and Finland, has moved into modern and larger offices at Stureplan 19, Stockholm. . . . Production of paper and board in Scotland during 1958 stood at 423,500 tons (385,000 metric), up from 1957's 409,200 (372,000 metric).

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Faster Drying
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Scapa staggered-butt clipper seam using synthetic tapered webbing is engineered to give the extra life required from these longer running Scapa felts.

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MONTHLY REPORT – WORLD NEWS

172-IN. FOURDRINIER KRAFT MACHINE . . . for the new San Joaquin, Calif. paperboard mill of Fibreboard Paper Products Corp. will be built by Pusey & Jones Corp. The contract was awarded by Bechtel Corp., San Francisco, contractors and engineers.

OUTPUT OF PAPER MILK CARTONS . . . will increase this year, according to American Can Co. Production should set a record of some 15 billion units—up substantially from the estimated 14.03 billion produced in 1958.

FULL CAPACITY IN BRITISH COLUMBIA . . . where Elk Falls Co. Ltd. (a division of Crown Zellerbach Canada Ltd.) has boosted kraft pulp production to 480,500 tons per day. This output will probably continue until fall, according to Vice Pres. R. J. Schadt. Reason for the increased demand: Stockpiling at the Antioch, Cal. mill, where No. 1 machine is to be shut down for improvements.

RECENT PURCHASE . . . by Brooks-Scanlon Inc. of 240 acres of water rights and land at Bend, Ore., and the firm's continued interest in acquiring more tracts with water rights, has been unofficially interpreted as indicating renewed interest in constructing a pulp mill by this Powell River Co. affiliate.

HOPSCOTCHING THE NORTH AMERICAN INDUSTRY. . . . Champion Paper & Fibre Co. has formed a wholly owned subsidiary—Champion Paper Specialties Inc.—to process and merchandise a line of cut-size papers. . . . Mead Corp. will erect a new steam plant for its paperboard mill at Sylva, N. C.; Babcock & Wilcox Co. has fabricated and will install the unit, which will replace six older boilers, at a cost of about $1,250,000. . . . No. 4 machine at the Lachute, Que. mill of J. C. Wilson Ltd. is now operating at speeds of up to 500 fpm following a rebuild by Dominion Engineering Co. Ltd. . . . Western Canada's first bleached kraft milk carton stock to be made on a Fourdriner machine was produced recently by Elk Falls Co. Ltd. (a division of Crown Zellerbach Canada Ltd.). . . . Champion Paper & Fibre Co. has acquired Buffalo Envelope Co. Inc. . . . Extended to May 1, 1962, is an agreement between Anglo-Newfoundland Development Co. Ltd. and the provincial government of Ontario, providing forest lands to be used in connection with a proposed pulp and/or paper mill near Sioux Lookout. . . . Installation of seventh digester has been completed at the Alberni Pulp & Paper div. of MacMillan & Bloedel Ltd., Port Alberni, B. C.; built by Dominion Bridge Co. Ltd., the unit has an 8,000-cu. ft. capacity and stands 54 ft. high. . . . Production of newsprint in North America during April amounted to 695,830 tons and was 3.7% above the April 1958 volume. . . . A proposed merger of Valsetz Lumber Co. and Templeton Lumber Co. (both of Portland, Ore.) into Boise Cascade Corp. has been approved verbally by directors of the respective companies. . . . Holders of more than 80% of the common stock of Beckett Paper Co., Hamilton, Ohio, will accept an offer by Hammermill Paper Co. to issue up to 112,750 shares of Hammermill common in exchange for Beckett common. . . . Stone & Webster Engineering Corp. will provide the engineering design for the expansion of Georgia-Pacific Paper Co.'s pulp and paper mill at Toledo, Ore. . . . Extensive holdings in Idaho have been purchased by Diamond Gardner Corp. from Ohio Match Co.; the acquisition includes a sawmill, match block plant and 55,000 acres of timberland in the vicinity of Coeur d'Alene. . . . Interstate Container Corp., an eastern manufacturer of corrugated containers, has been merged into United Board & Carton Corp. . . . The Gas Cleaning div. of Hagan Chemicals & Controls Inc. will furnish a 364-tube aerostatic dust collector for fly ash control at Crossett Paper Mills, Crossett, Ark. . . . Northwest Filter Co. will supply a complete water treatment plant for Powell River Co. Ltd's new fine paper plant on Annacis Is., B. C. . . . The Los Angeles, Calif. plant of National Container Corp. of California (a subsidiary of Owens-Illinois Glass Co.) is being modernized and expanded to more than double its present size.

Which of these 3 products and services can you use from BECCO?

"Enclosing $1.00 — Send Patent License"

Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The $1.00 really does cover it.

Becco has lots of patents, granted as a result of innovations in the use of Hydrogen Peroxide and other Peroxygen chemicals developed in Becco's Research Laboratories. But they don't do us a whole lot of good locked tightly in our safe. So, we long ago adopted the following policy:

If one of our patents can help you, we'll be glad to license the rights to you **perpetually**, for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important – you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

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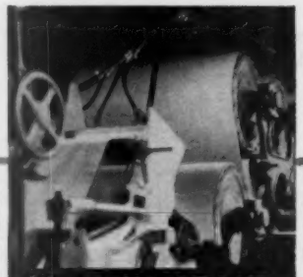

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That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

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The Supratonator

PROKOP, JIRI, and KORDA, JOEF. Papír a celulosa 13, no. 7:150-2 (July, 1958), [In Czech; Russian, German, and English summaries] Abstr. Bull I.P.C. 29-1113.

Plant experience with the supratonator refiner (the fiberizing action of which is based of the principle of pulsating pressure) is reported. The machine was used to fiberize such materials as kraft and sulfite pulps, white groundwood, broke, and screen rejects. An increase in breaking length and the number of double folds with no change in freeness was observed in all materials. Only fibers longer than 1600 μ were shortened. The observed decrease in the average fiber thickness could be attributed to the separation of shives. The energy consumption of the supratonator varied from 20 to 80 kw.-hr./ton, depending on the charge, the type of material fiberized and its consistency. With sulfite pulp, the lowest energy consumption was found for a consistency of 2%. Lower and higher consistencies not only increased the energy consumption, but also lowered the efficiency of the machine. From the point of view of performance and energy consumption distance between the beating surfaces was found to be 0.3 mm. When thorough and complete fiberization is desired, the use of a supratonator instead of conical refiners can be recommended.

Carboxmethylcellulose in Printing Papers

Volkova, T. P. Bumazh. Prom. 33, no. 10: 15-16 (Oct. 1958), [In Russian] Abstr. Bull. I.P.C. 29:1113.

Four carboxymethycellulose (*I*) preparations having a viscosity of 106.4, 67.7, 127.7 and 240.5 mp. and a degree of etherification of 87.6, 77.3, 61.0 and 83.7, respectively, were added in amounts of 1 and 2% (on the basis of fiber weight) to bleached sulfite pulp, which was beaten to 20-80° S.-R.; hand sheets made of all pulp samples were tested for their breaking length, folding endurance, burst and tear strength. The results obtained showed that *I* considerably increases the mechanical strength of paper only if added to pulps beaten to 40° S-R. or less. The highest increase in the mechanical strength of paper, as compared with control handsheets not containing *I*, was obtained with preparations 1 and 4, indicating that the physicochemical properties of *I* are an important factor affecting the mechanical strength of paper.

Presented with permission of The Institute of Paper Chemistry, under supervision of Curtis L. Brown, editor of IPC Bulletin. Photostats or translations of original reports available at reasonable cost by writing Eugene Bunker, librarian, Institute of Paper Chemistry, PO Box 498, Appleton, Wis., U.S.A.

Alcoholic Nitration of Woods

Kürschner, K., and Hostomsky, G. Holzforschung 12, no. 5: 142-8 (Nov., 1958). [In German; English summary] Abstr. Bull. I.P.C.1155.

The alcoholic nitration of woods permits the quantitative determination of cellulose as a cooking residue. The lignin that dissolves during this treatment as nitrolignin can also be determined quantitatively. The lignin values found by this method are about 10% lower than those reported in the literature, amounting to 19% for spruce, 13% for oak, 12% for beech and 11% for walnut. The discrepancies are not caused by the partial oxidative degradation of lignin, because the total oxidation losses (formation of carbon dioxide, carbon monoxide, water and oxalic acid) merely amount to 1% by weight of the wood for spruce and to 0.5% for beech. Even if two thirds of these losses originate with the lignin component, they are negligible (approximately 0.75% by weight of the wood) compared with the observed discrepancies. It is, therefore, assumed that the higher lignin values reported in the literature were caused by the coprecipitation and strong retention of carbohydrates.

Coniferin in Plant Tissue Undergoing Lignification

Kratzl, K., and Faigle, H. Monatsh. Chem. 89, no. 6: 708-15 (Dec., 1958). [In German] (Abstr. Bull, I.P.C. 29:1155.

An aqueous solution of coniferin-3-C^{14} was injected into 2-year old spruce branches, and the distribution of the radioactivity in the wood, bark, side shoots and extracts was measured. About 90% of the radioactivity could be accounted for. Wood and bark were subjected separately to Hibbert-type ethanolysis, and the resulting lignin fractions yielded radioactive vanillin and vanilloylacetyl. Approxmately one third of the coniferin was incorporated within 24 hr. into the lignin of the branchwood, another one third found its way into the extracts and side shoots (including the needles). The dilution of the injected coniferin was the same in all lignin fractions, i.e., its polymerization product could not be differentiated from natural lignin. This result is in contrast to that obtained previously with implanted coniferin, of which only small amounts were incorporated into the alcoholyzable side-chain structure (Hibbert building units), whereas the majority was found in the insoluble wood residue. It is, therefore, concluded that the infusion method is superior to the implantation method in studying the natural lignification process.

Utilization of Melitotus Officinalis

KRACH, HERMINA, and LANG, GUSTAW. Przeglad Papierniczy 14, no. 5: 129-34 (May, 1958). [In Polish] Abstr. Bull. Inst. Paper Chem. 29:723.

Laboratory kraft and semichemical cooks were carried out, using *Melitotous officinalis* straw (*I*), rye straw, reed, and mixtures of *I* with rye straw and with reed. The kraft pulps were prepared by cooking at 145-160°C. for 2-3 hr. with a liquor containing 20% active alkali, and the semichemical pulps by cooking at 135-155° for 6 hr. with calcium hydroxide (15% calcium oxide on the basis of ovendry material) or sodium hydroxide (10%). All pulps were beaten to 50° S.-R. Mixed kraft pulps containing up to 20% *I* had strength properties comparable to those of pure rye straw or reed pulps. Increasing the percentage of *I* resulted in a lowering of mechanical strength, particularly of breaking length. Semichemical pulps obtained by cooking with calcium hydroxide gave yields of 74.6-79.6%; pulps obtained by cooking with sodium hydroxide had lower yields (69.5%). Pure *I* pulps had relatively low strength properties (breaking length about 3000 m., tear strength 67.4-79.5 g., folding endurance 5-12 double folds). Mixed semichemical pulps containing 50% *I* had a breaking length of about 4000 m. Boards prepared from *I* semichemical pulp and from mixed semichemical pulps, however, had strength properties superior to those from pure rye straw or reed pulps.

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Powell Corrosion Resistant Valves are made in stainless steel, Monel, nickel, Hastelloy alloys, aluminum and other special corrosion resisting metals.

Solid and double wedge discs of gate valves are interchangeable. They are precision machined and fitted and are accurately guided throughout their entire travel. This prevents drag of the disc over the seat faces, eliminating wear of seating surfaces and stops undue vibrational noises.

O.S.&Y. Valves—Stems are threaded and guided through a bronze bushing in upper yoke. (Bushings made of other alloys can be supplied on special order.) A compression lubricant fitting in upper yoke is provided to lubricate the stem and bushing threads and to reduce wear. A convenient shelf is cast on the inner sides of yoke arms for suspending the gland when renewing the packing.

All valves are regularly packed with Teflon Packing. Globe and "Y" valves are available with metal or Teflon discs.

Globe, Angle, Gate and "Y" valve stems are back seated for repacking under pressure when fully open.

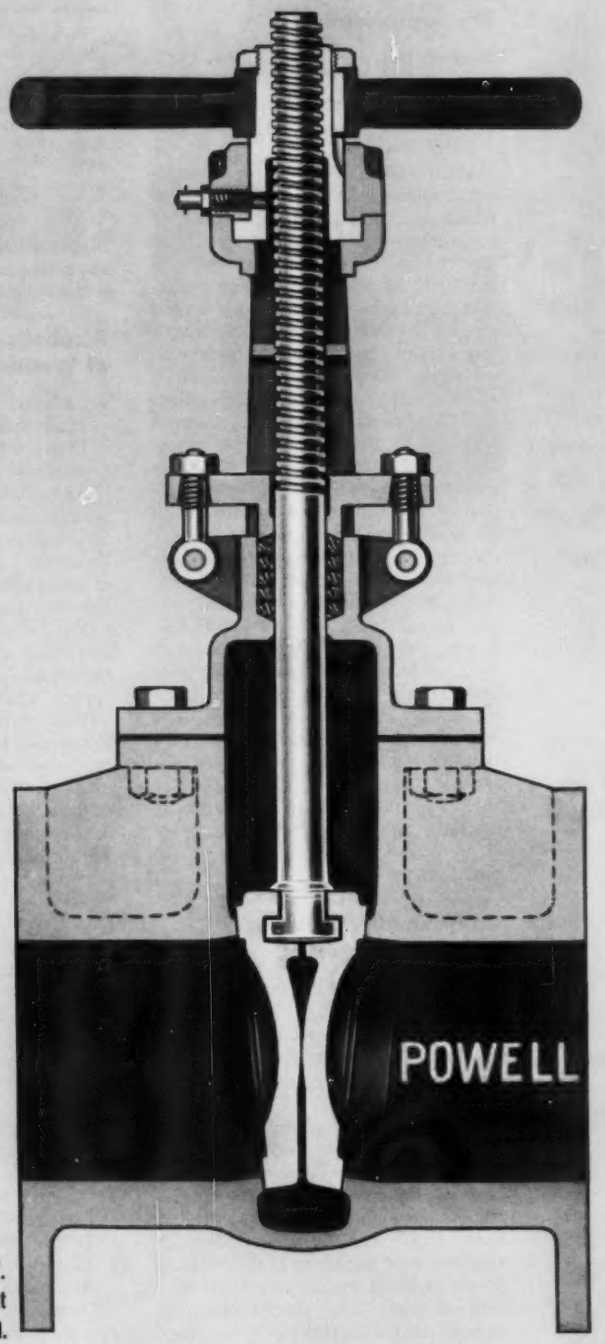

Fig. 2453 DG (Sectional)—Large Stainless Steel O.S.&Y. Gate Valve. Available with interchangeable solid or split wedges. Wedges are fully guided throughout their travel.

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Fig. 2633—Large, Stainless Steel Swing Check Valve for 150 W.P. Sizes, 2" to 12".

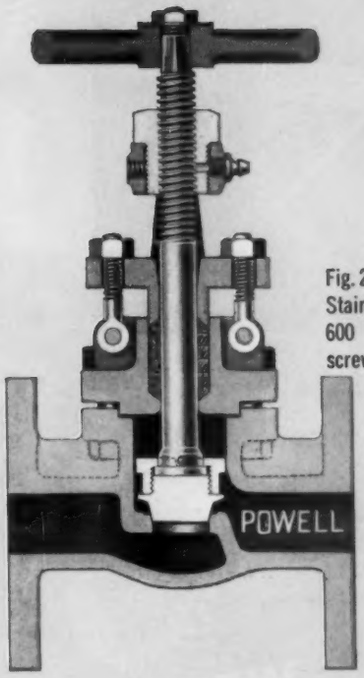

Fig. 2475 (Sectional)—150 W.P. O.S.&Y. Stainless Steel Globe Valve. 300 and 600 W.P. also available. ¼" to 3"—screwed and flanged ends.

Fig. 2106 (Sectional)—150 W.P. O.S.&Y. Stainless Steel "Y" Valve. ¼" to 3"—screwed and flanged ends. 300 W.P. valves also available.

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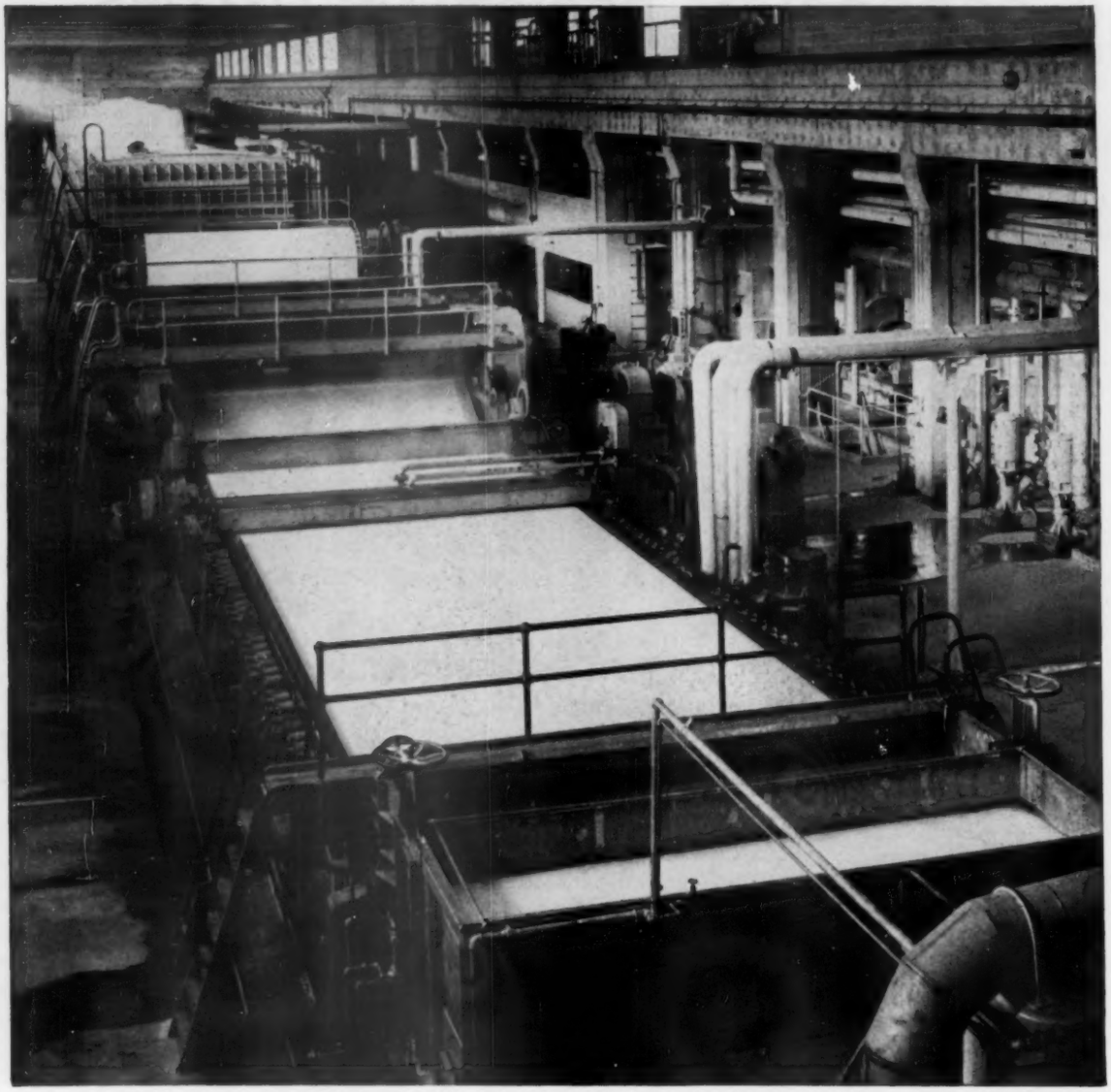

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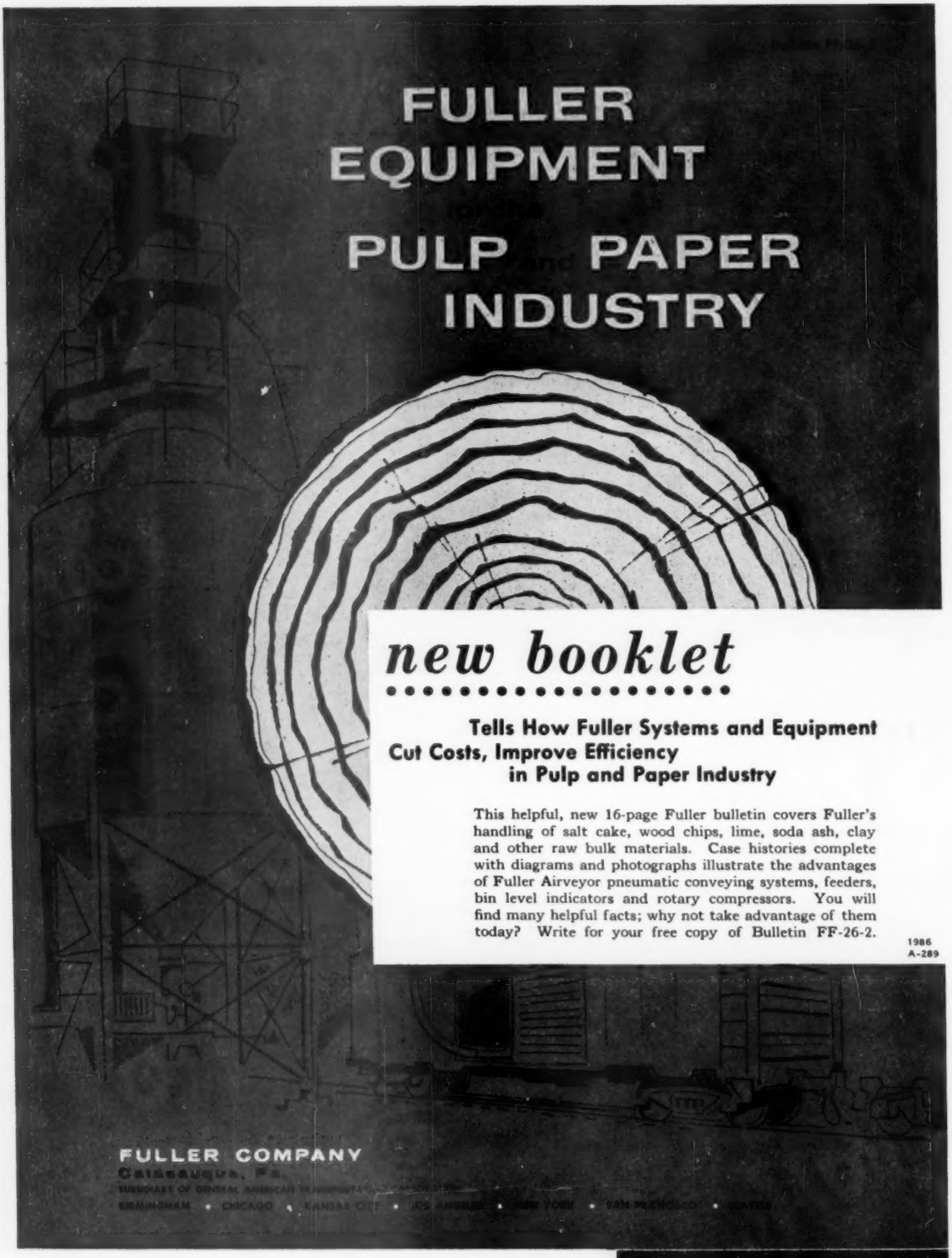
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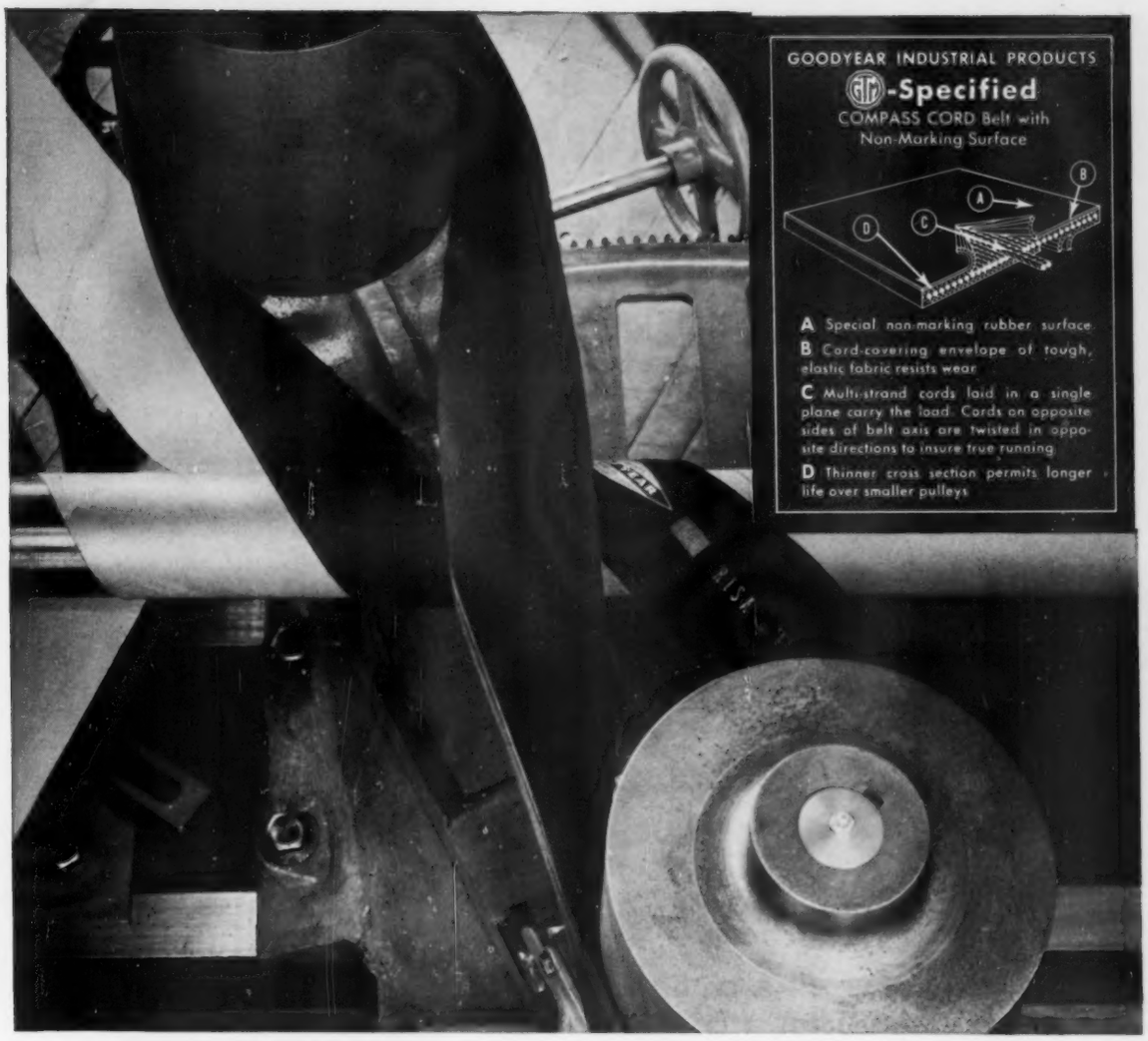
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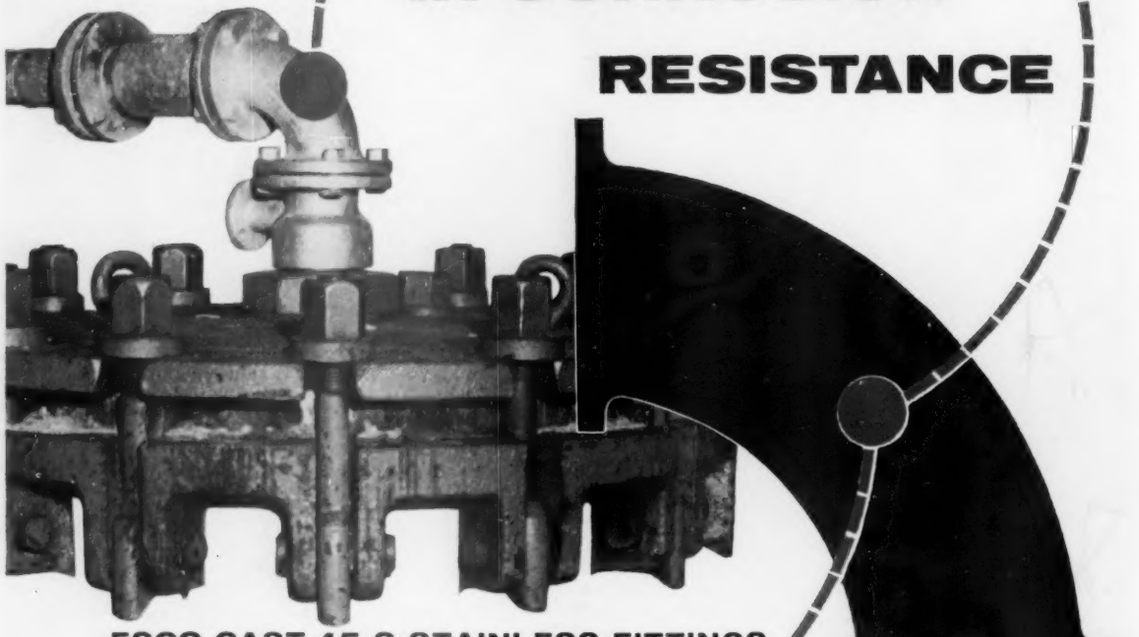

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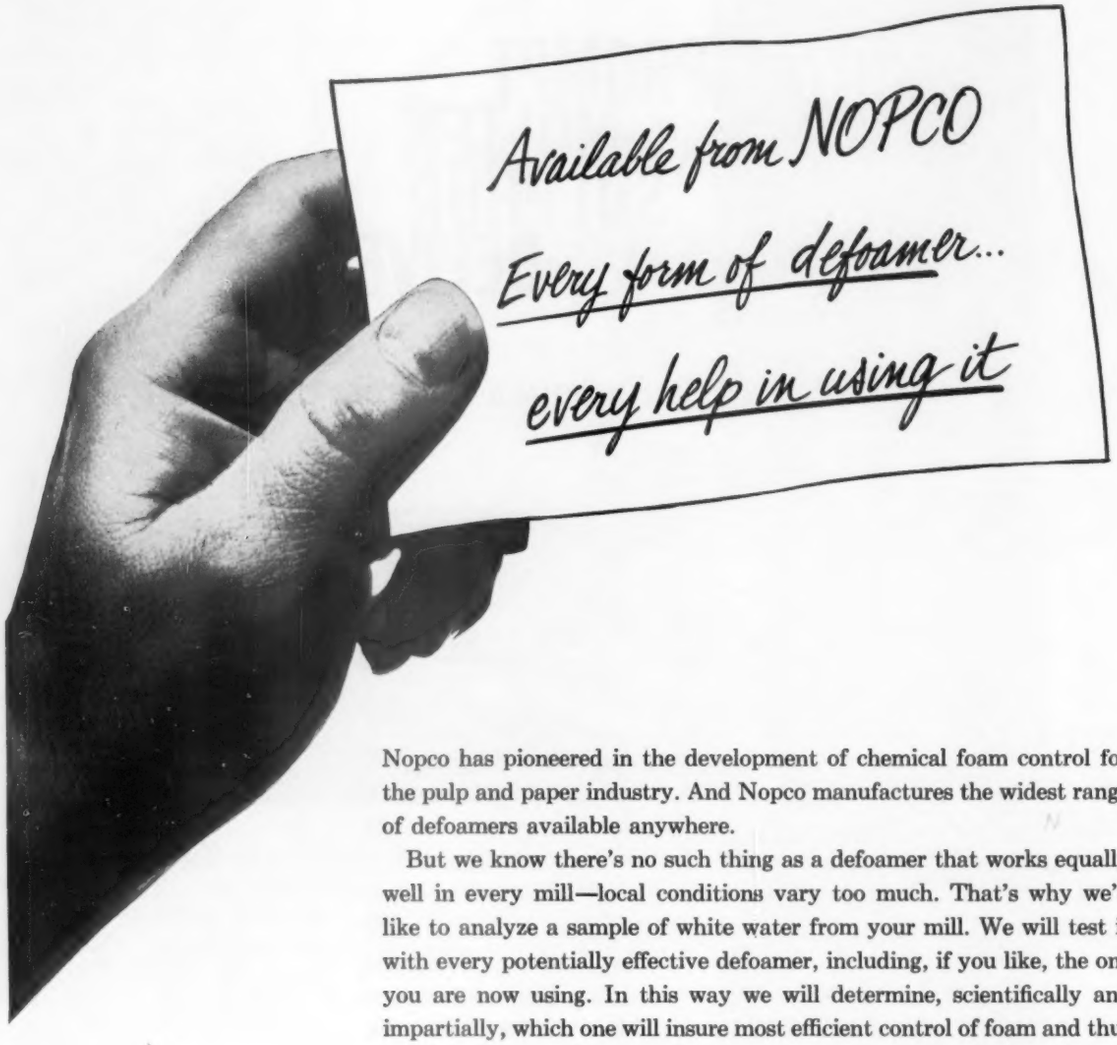

Nopco has pioneered in the development of chemical foam control for the pulp and paper industry. And Nopco manufactures the widest range of defoamers available anywhere.

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To these basic pulping ingredients, Weyerhaeuser people apply their talents and experience to produce top quality pulp for the nation's outstanding paper makers.

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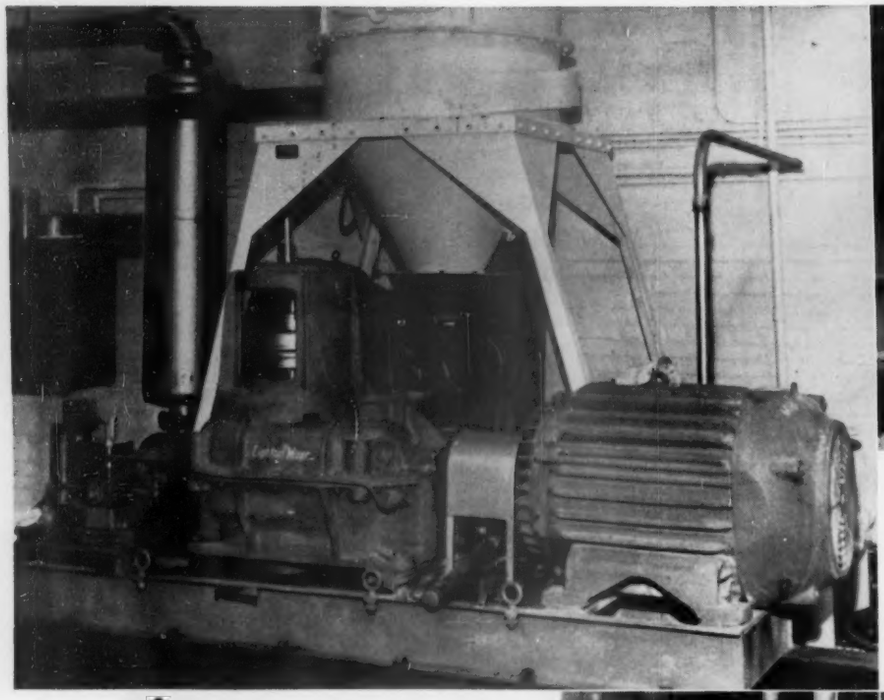

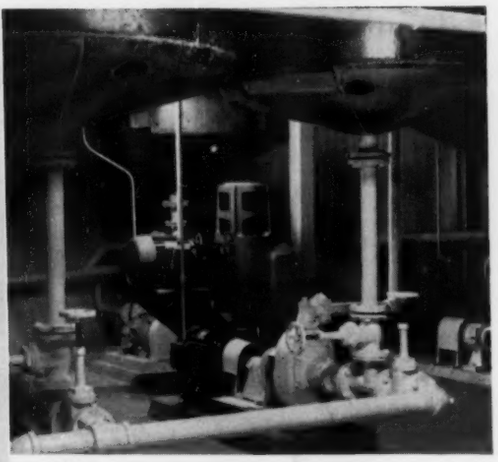

CLAY SLURRY at 71% solids waits in five 120-ton storage tanks, held in uniform suspension by 10-hp LIGHTNIN Mixers.

STARCH MEETS WATER in 1,000-gallon tanks. Then clay slurry is charged, reducing solids to 52-58%. A 3-hp propeller-type LIGHTNIN Mixer in each tank assures consistent density of feed to continuous cooker.

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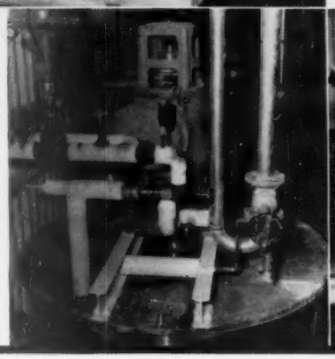
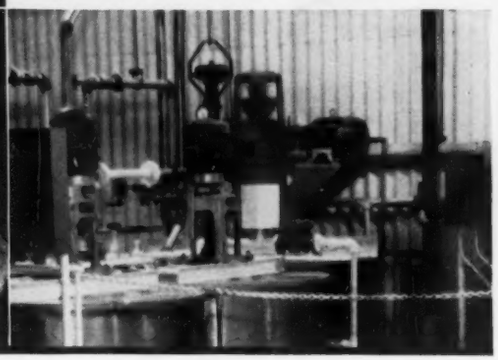
HIGHLY THIXOTROPIC clay-starch slurry from cooker turns over in two tanks equipped with 10-hp LIGHTNIN Mixers. Then it moves to 1,000-gallon storage tanks where 5-hp LIGHTNIN Mixers keep it thoroughly blended to prevent crusting before use.





One man, 20 mixers clobber cost of coatings

Designed to handle clay in bulk as a slurry, this new mixing system at Blandin Paper Company, Grand Rapids, Minn., helps in four ways to prepare coatings at record low cost.

1. The system itself cost much less to build than comparable coating facilities.

2. It permits the purchase of lower-cost bulk clay.

3. Ended are the problems of space-wasting dry storage, handling of bags, and dust. Clay is always ready for immediate use.

4. One man per shift handles all operations—with the help of 20 LIGHTNIN Mixers ranging in size from 3 to 75 hp.

What mill management says

"We knew that mixing was going to be a vital part of our new process," says Harold F. Zigmund, Blandin's vice-president in charge of manufacturing. "We required equipment that was sound and could give us the process result we were looking for.

"LIGHTNIN Mixers have enabled us to accomplish both of our goals. The cooperation and service we have obtained from the MIXCO field representative have been most helpful to us."

Since completing the new coatings plant, Blandin has decided to use LIGHTNIN Paper Stock Agitators on the mill's three brown-stock chests, a neutralization chest, and a broke chest.

Guaranteed mixing performance can mean savings for you, just as it does for Blandin. And it's easy to get. At a call from you, an experienced LIGHTNIN Mixer representative can size up your needs and help you select precisely the right mixing system to deliver the results you want.

He draws upon the experience of thousands of test runs, and successful installations in several hundred mills. He offers you widest possible choice of *standard* power-speed combinations and mixer designs. Call him in now (he's listed in Paper & Pulp Mill Catalog). Or write us direct.

Lightnin® Mixers

MIXCO fluid mixing specialists

MIXING EQUIPMENT Co., Inc., 141-9 **Mt. Read Blvd., Rochester 3, N.Y.**

In Canada: Greey Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 19, Ont.

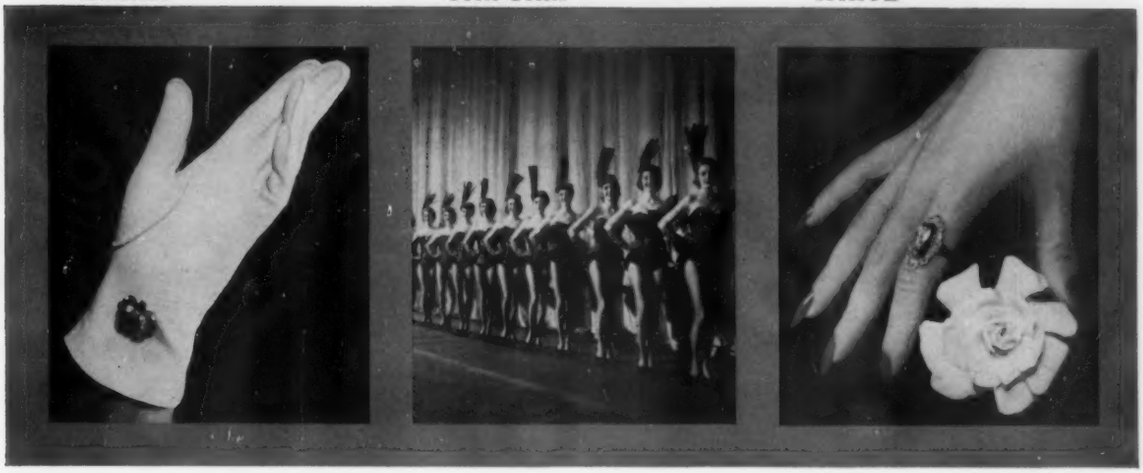
PUGET PULP

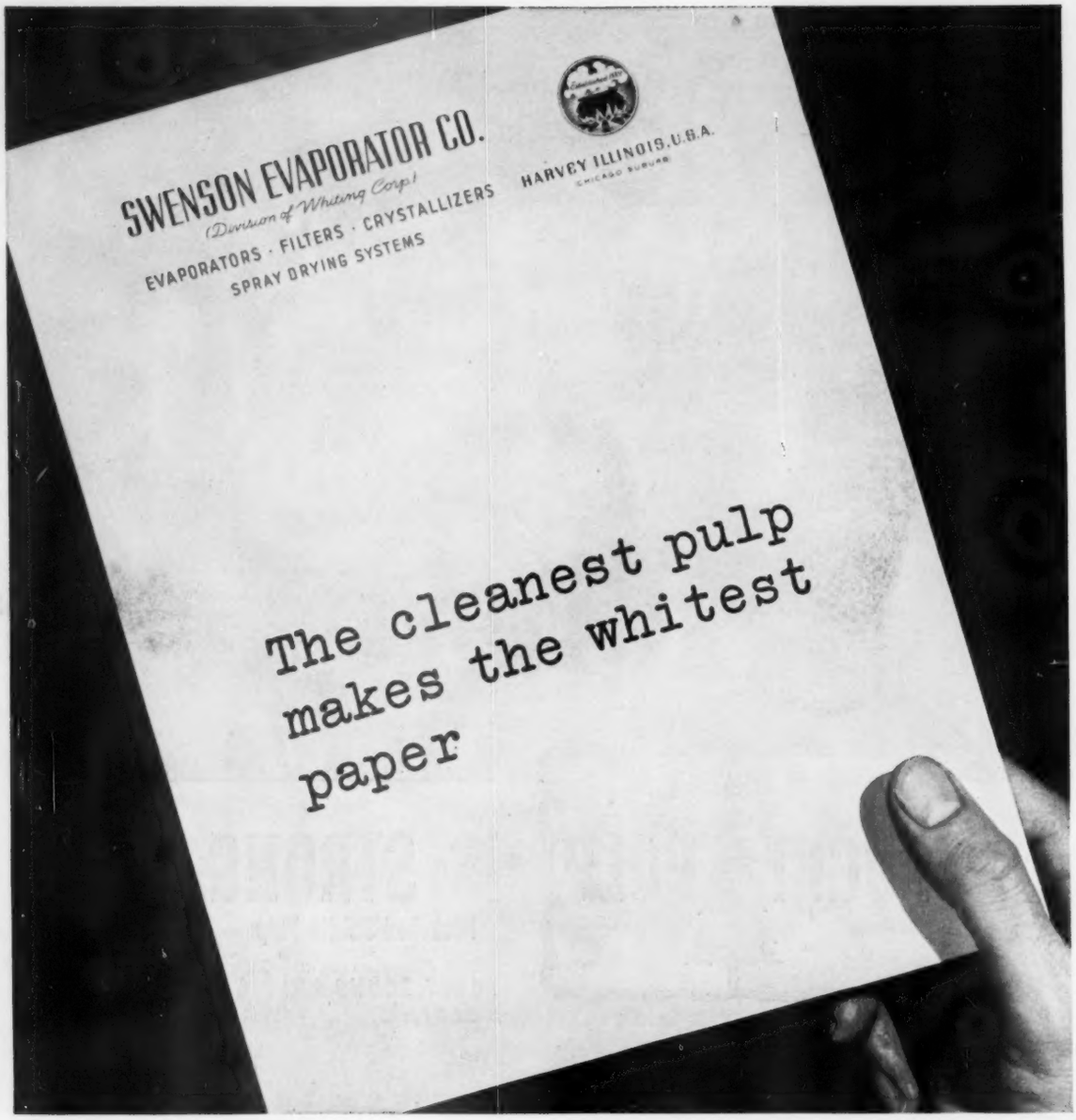
IS STRONG

Bleached Sulfite Pulp

PUGET SOUND PULP & TIMBER CO.
BELLINGHAM • WASHINGTON

CLEAN UNIFORM WHITE





Clean pulp is a basic requirement for economical bleached pulp and white paper production. Swenson pulp washers provide this clean pulp—and produce it with an extremely low dilution of the recovered black liquor. As a result, both bleaching costs and chemical recovery costs are held to a minimum. These operating advantages are backed by proven mechanical reliability and such features as self-aligning roller bearings and high strength deck construction. Specify Swenson pulp washing equipment.

FREE BOOKLET . . . Provides new insight into pulp-washing efficiency. Write today for Bulletin SW 300! *Swenson Evaporator Company, 15632 Lathrop Avenue, Harvey, Illinois.*

PROVED ENGINEERING FOR THE PROCESS INDUSTRIES SINCE 1889

SWENSON

A Division of WHITING Corporation

WHITING—MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; TRACKMOBILES; FOUNDRY AND RAILROAD EQUIPMENT.

another G-E development

GENERAL ELECTRIC ANNOUNCES . . .

New Custom '8000'* Motors

PROJECT '8000' . . . a major General Electric program of research, redesign, advanced manufacturing and improved customer service on A-c motors 150 to 6000-hp.

*Trademark of General Electric Co.

CUSTOM DESIGNED . . . New General Electric Custom '8000' motors are built specifically to meet your requirements. Selecting from specially designed enclosures, advanced insulation systems, custom-designed end shield and bearing constructions, and more than 15 custom-designed accessories—plus a countless number of electrical designs—General Electric engineers will create a motor to meet exacting needs, provide initial and continuing economy, and give long, reliable service. Turn page for features of new Custom '8000' motors.

NEW CUSTOM '8000' MOTORS GIVE TOP PERFORMANCE WITH LESS MAINTENANCE . . . HERE'S WHY

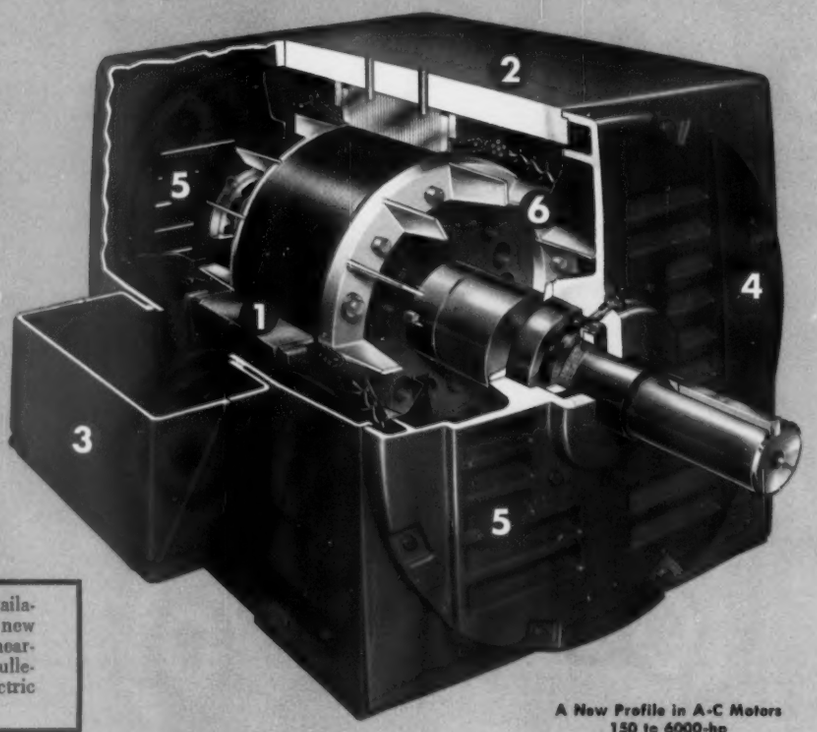
GENERAL ELECTRIC

FROM GENERAL ELECTRIC . . .

another G-E 8000 development

NEW Custom '8000'* Motors Give Greater Reliability Require Less Maintenance

1. **LONGER INSULATION LIFE**—Pre-wound core allows closer quality control and gives longer insulation life through improved varnish impregnation or silicone rubber encapsulation.
2. **BETTER CONSTRUCTION**—Cast iron frame withstands 20G simulated transportation shock tests; resists corrosion.
3. **FASTER INSTALLATION**—Conduit box has up to 3 times volume of ordinary boxes; lifting lugs, cast to frame, hold up to 12 times motor weight.
4. **EASIER MAINTENANCE**—Flat end shields are more adaptable to addition of accessories or modifications; are lighter—easily handled by one or two men.
5. **BETTER COOLING**—Double-end ventilation, new duct design and louvred air openings provide more efficient air distribution through motor, reduce hot spots.
6. **LOWER NOISE LEVEL**—Sound power has been cut up to 50% by redesigning frame sections, rotor fans, air deflectors and intakes.



A New Profile in A-C Motors
150 to 6000-hp

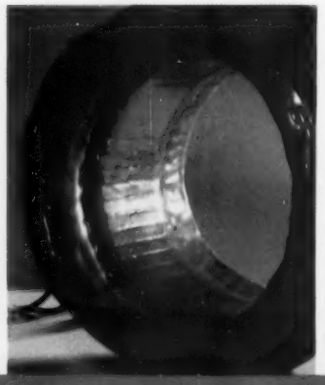
FOR COMPLETE INFORMATION and availability dates about General Electric's new Custom '8000' motor line, contact your nearby Apparatus Sales Office, or write for bulletin GEA-6865, Section 884-2, General Electric Co., Schenectady, N. Y.

NEW *Polyseal** SILICONE RUBBER INSULATION SYSTEM IS AVAILABLE ON CUSTOM '8000' MOTORS

Silicone rubber used in Polyseal insulation systems is a product of General Electric's Silicone Products Dept., Waterford, N. Y. . . . a leader in research, development, and manufacture of silicone materials. Supported silicone tape is a development of General Electric's Insulating Materials Dept., Schenectady, N. Y. Combining silicone rubber with dacron-glass supporting materials is a major engineering advancement, giving this material both the mechanical and dielectric strength required for use as a motor insulation. Polyseal insulation systems are available *only* on General Electric motors. Medium AC Motor & Generator Dept.

FORM-WOUND MOTORS

Polyseal supported silicone rubber insulation system provides greater mechanical, thermal, voltage and environmental endurance than unsupported silicone rubber. Glass fabric materials are imbedded in each layer of silicone tape, which, after coil wrapping is vulcanized under heat and pressure to seal the system against moisture and contaminants. General Electric form-wound open motors with Polyseal insulation system can be used in some severe atmospheres formerly reserved for totally-enclosed motors.



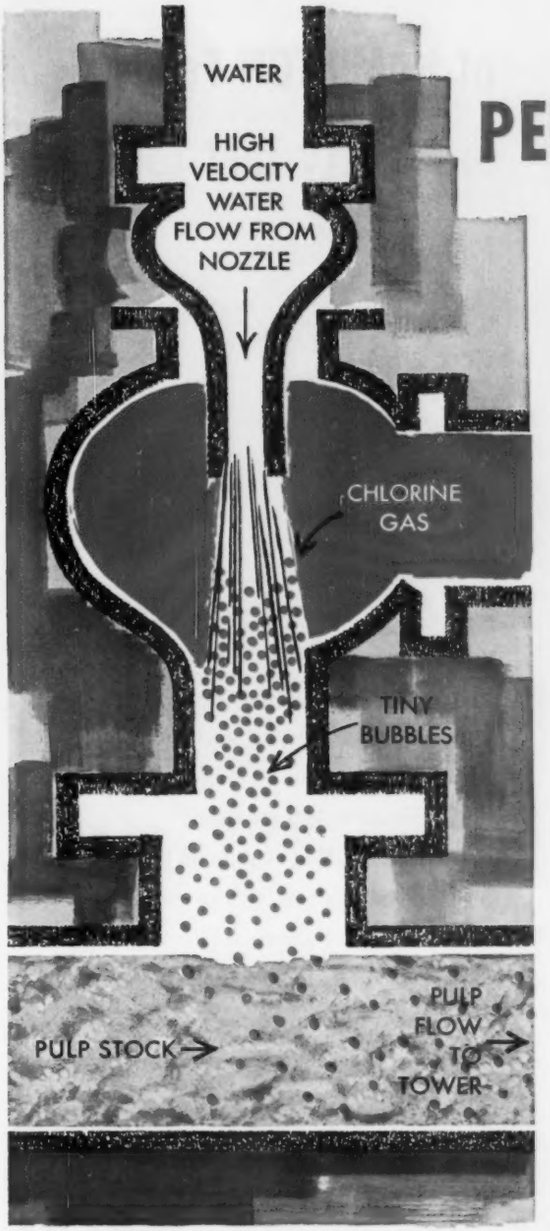
RANDOM-WOUND MOTORS

Polyseal silicone insulation system offers greater flexibility and better heat transfer than existing encapsulations . . . it operates effectively from —90C to 200C and will not crack under excess thermal cycling or severe moisture. After receiving G.E.'s standard random-wound insulation treatments, Polyseal insulation is applied to stator and end turns, completely sealing windings with a thin, waterproof, inert covering which protects against extreme moisture, most chemical fumes, dust and corrosion.

*Trademark of General Electric Co.

Progress Is Our Most Important Product

GENERAL ELECTRIC



A high pressure water flow, passing from an ejector nozzle, enters the flow of chlorine gas, and disperses it into countless tiny bubbles which readily go into solution as they enter the pulp flow.

PENNSALT DISPERSED CHLORINE SYSTEM

- **Improves Pulp Quality**
- **Chlorinates Pulp *Uniformly***
- **Improves Oxidation-Potential Chlorine Control**

Pennsalt developed the Dispersed Chlorine System in an effort to overcome problems encountered in mixing chlorine gas evenly into pulp slurry. Now the trend is toward this improved system which assures more uniformly treated pulp.

The Pennsalt Dispersed Chlorine System distributes chlorine evenly. Tiny bubbles of chlorine gas hold in contact with pulp fibres until absorbed. Fibre-bundles trap the small bubbles, preventing them from regrouping, as do the large bubbles formed by mechanical methods.

Partial list of mills using a
PENNSALT DISPERSED CHLORINE SYSTEM

Alaska Pine & Cellulose, Ltd., Port Alice, B.C.
Bergstrom Paper Co., Neenah, Wis.
British Columbia Forest Products Co., Crofton, B.C.
Brunswick Pulp & Paper Co., Brunswick, Ga.
Crown Zellerbach Corporation, Camas, Washington
Longview Fibre Co., Longview, Washington
MacMillan & Bloedel, Ltd., Harmac, B.C.
Publishers Paper Company, Oregon City, Oregon
Scott Paper Co., Everett, Washington
Weyerhaeuser Timber Co., Everett, Washington
Weyerhaeuser Timber Co., Cosmopolis, Washington

Ask Pennsalt Technical Service for help in solving your particular problems. Write for free Technical Bulletins Nos. P-1006, P-1013, and Drawings T50W212 and T50W218.

PENNSALT OF WASHINGTON DIVISION
PENNSALT CHEMICALS CORPORATION
TACOMA 1, WASHINGTON
OFFICES AND PLANTS:
Los Angeles & Menlo Park, Calif. Philadelphia, Pa. Portland, Ore.
Vancouver, B.C. (CRestwood 8-1412)

Pennsalt Chemicals
ESTABLISHED 1850

Ham Feltz says: **"Reminds me that the makers of HAMILTON Felts are pretty fast too!"**

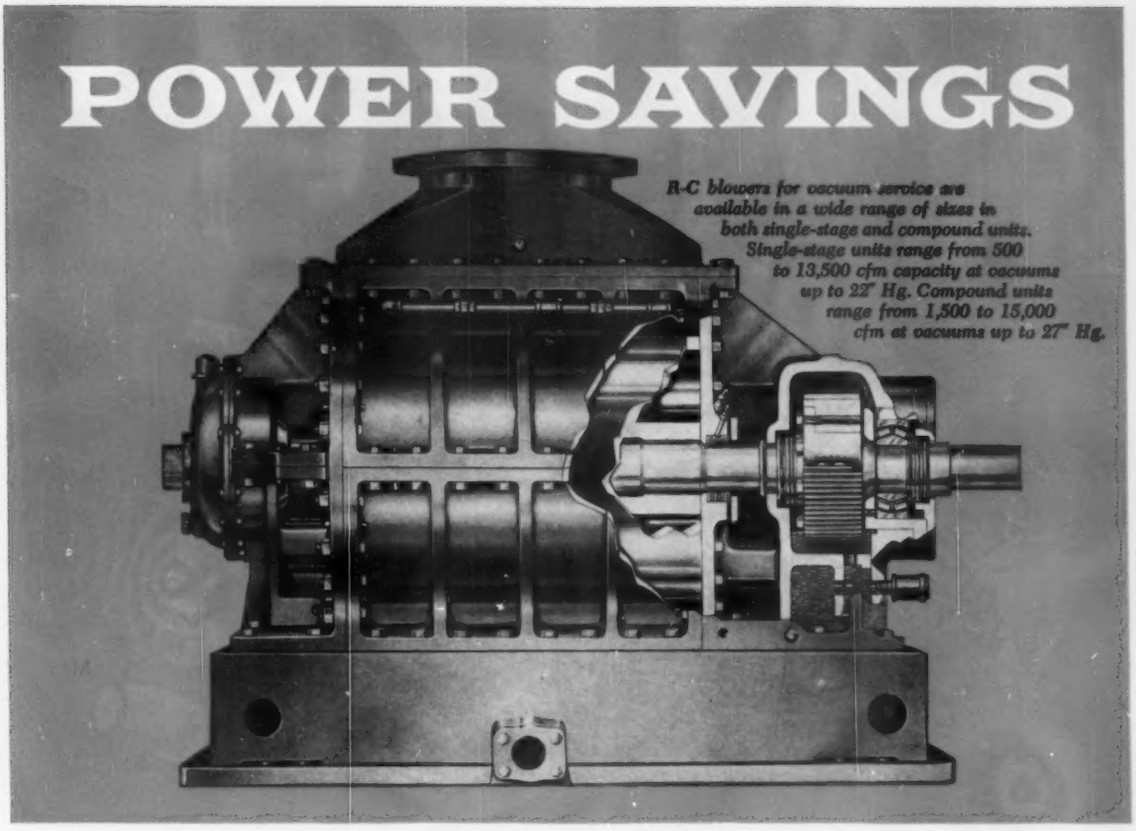
Photo by Ewing Galloway, N. Y

"Well, you really couldn't call
the makers of Hamilton Felts — 'Minute Men'
but they do have a reputation for
getting out felt orders pretty fast
— without sacrificing careful workmanship
or thorough inspection. And because
really accurate records are kept
of every order, all you have to do to
get a Hamilton Felt exactly like your last one
is to write, wire or telephone.
If this is important to you (and it should be)
why not start using us as one
source of your felt supply — today?"

YOU CAN'T BEAT
Hamilton
FELTS

SHULER & BENNINGHOFEN, HAMILTON, OHIO

POWER SAVINGS



R-C blowers for vacuum service are available in a wide range of sizes in both single-stage and compound units. Single-stage units range from 500 to 13,500 cfm capacity at vacuums up to 22" Hg. Compound units range from 1,500 to 15,000 cfm at vacuums up to 27" Hg.

...up to 25% with R-C Cycloidal Blowers for Vacuum Service

Because R-C cycloidal blowers for vacuum service operate at higher speeds with reduced horsepower, power savings of as much as 25% are often possible. Their simple design and rugged construction assure superior performance, low maintenance and long life. These advantages derive from the high volumetric efficiency of the design, low mechanical friction and installation flexibility. Minimum sealing water effectively overcomes slippage loss . . . as little as 4 gpm may be required.

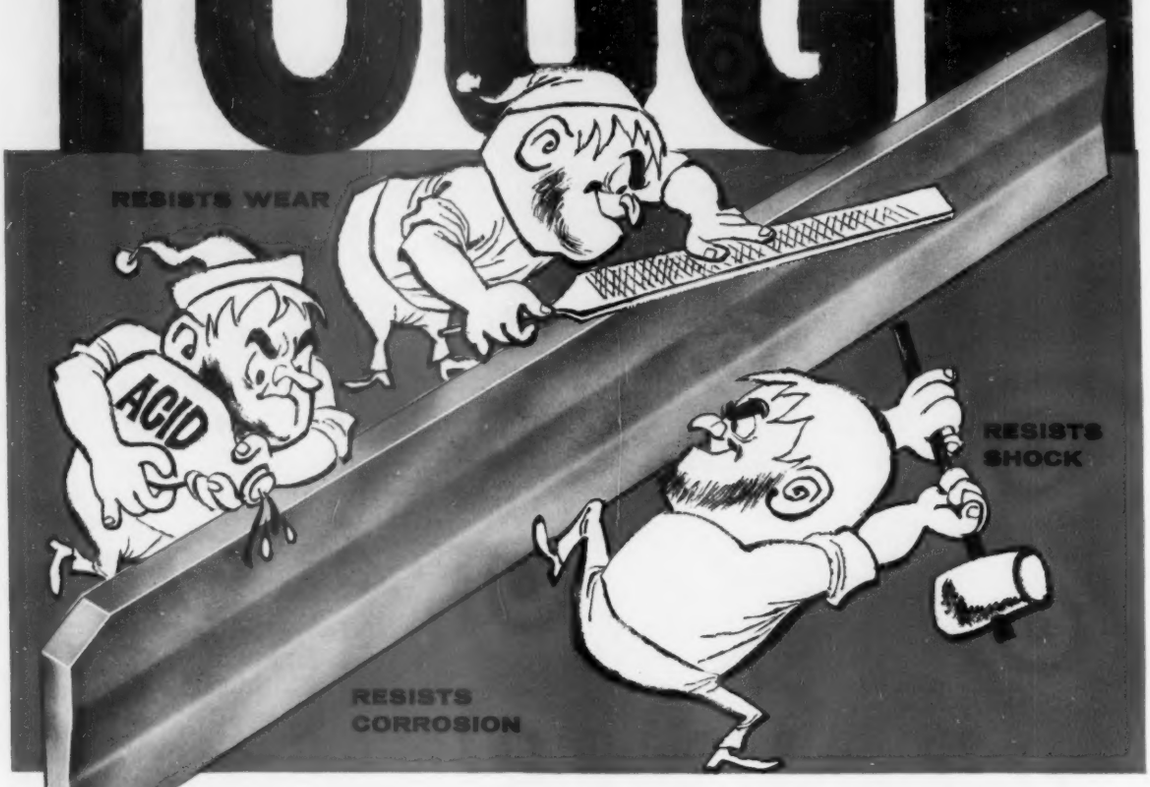
R-C blowers for vacuum service are used throughout the world in a large number of industries. In chemical processing, R-C blowers have many applications in the handling of nitrogen, hydrogen, acetylene, moist air with SO^2, and other oil and gas mixtures. In paper-making, R-C blowers supply vacuum for suction rolls. In mining, R-C blowers provide vacuum for flotation, filtration and other ore processing requirements. And throughout general industry, they are used for carburetor testing, pneumatic conveying, food processing, cigarette tipping machines, aircraft component testing and many other applications.

Only Roots-Connersville vacuum equipment offers so many advantages — exclusive rotary positive design, ease of installation, efficiency of operation, and long years of trouble-free service. These features are the result of R-C's specialized experience of more than 100 years in the design and application of air and gas handling equipment.

For additional data, please refer to pages 565-568 in **CHEMICAL ENGINEERING CATALOG,** *our section in* **MECHANICAL CATALOG** *or write for* **Bulletin VP-158.**

ROOTS-CONNERSVILLE BLOWER
DIVISION OF DRESSER INDUSTRIES, INC.
759 Willow Ave., Connersville, Indiana. In Canada—629 Adelaide St., W., Toronto

TOUGH

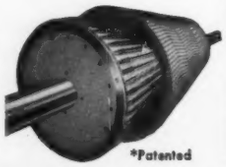


Jones® SUPER STAINLESS

... custom heat-treated to meet the toughest Jordan applications

Now in one Jordan bar steel — Jones Super Stainless — you can get the exact combination of physical properties you need for your particular refining operations. Inherently corrosion resistant, this tough chrome-nickel alloy is *precipitation* hardened by Jones' expertly controlled heat treating. This custom process relieves stresses within the metal and brings it to the ideal degree of hardness and tensile strength for your requirements.

Combine this superior metal with Jones' recognized leadership in the field of Jordan fillings and you have the best answer to your refining problems. On his next visit ask your Jones' representative for full details on Adapta-Plug* and Fulbar Shell Fillings with Super Stainless bars.



*Patented

CHECK THESE ADVANTAGES:

- Lasts longer than other metals
- Maintains sharper cutting edges.
- Cuts costs, improves refining
- Prompt service from standardized inventories — in any design for any Jordan

E. D. JONES CORPORATION

Pittsfield, Massachusetts

Member of the Beloit Group

PAPER MAKING Jones® MACHINERY

Jones equipment is sold in Canada by *The Alexander Fleck, Ltd., Ottawa* • Overseas Export Agents: *Castle & Overton, Inc.*, New York 20, N. Y. • Foreign Licensees: France — *Batignolles-Chattillon* • Italy — *de Bartolomeis* • Spain — *Gabilondo* • Japan — *Mitsubishi Heavy Industries.*

Why Hunter Packing Company uses STANOIL Industrial Oil

Two reasons: (1) STANOIL is a superior oil. (2) Along with STANOIL, Hunter Packing receives experienced lubrication technical service.

A special antioxidant in STANOIL gives the oil resistance to *chemical* change. Deposits are minimized. The oil has a high viscosity index, is resistant to *temperature* change. It lubricates effectively at both high and low temperatures. Due to special refining techniques, STANOIL will not readily emulsify. A special additive minimizes foaming. STANOIL has a low pour point. It flows freely at low temperatures. A rust inhibitor in STANOIL "plates out" on metal surfaces.

W. P. "Sandy" Wehking, the Standard Oil man who calls on Hunter Packing Company, has plenty of experience in technical service work. He's been at it for 17 years. Sandy studied chemistry at Blackburn College. He has also completed the Standard Oil Sales Engineering School.

To get more information about STANOIL Industrial Oil and to obtain technical help on your lubrication problems, call the Standard Oil office near you in any of the 15 Midwest or Rocky Mountain states. Or write, **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**

Quick facts about
STANOIL Industrial Oil

- Antioxidant gives oil resistance to chemical change, minimizes deposits.
- Inhibitor "plates out" on metal surfaces, prevents corrosion.
- Receives special refining to eliminate emulsion problems. Contains additive to minimize foaming.
- High viscosity index. Resists temperature change.

You expect more from **STANDARD** *and you get it!*

Temperature check. Frank Persson of Hunter Packing Company and Standard Oil lubrication specialist W. P. "Sandy" Wehking inspect one of four compressors in Hunter plant that uses STANOIL Industrial Oil.

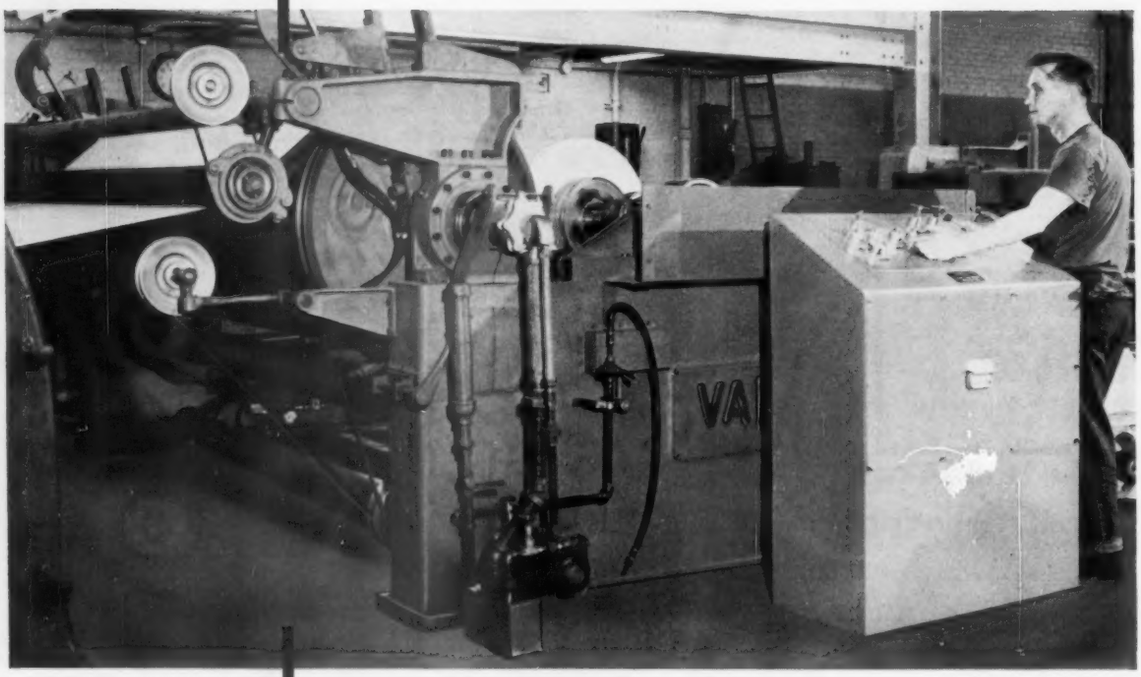
VALLEY

HORIZONTAL REEL

on No. 1 Paper Machine

NEKOOSA-EDWARDS PAPER CO.

Port Edwards, Wisconsin



Level wind
Surface wind
Center wind

Horizontal Track Surface Wind Reel designed for later addition of center wind components.

A major departure in reel design to provide completely versatile operation, surface or center wind, or a combination of both, with zero loading of the spool to the drum. Spool weight supported completely by the ways with no weight component on the drum.

Reel designs include spool starters, rope systems, spool brakes, stationary or oscillating doctors, as well as automatic operating features.

write....**VALLEY IRON WORKS COMPANY**

APPLETON, WISCONSIN

HYSTER ANNOUNCES THE ALL-NEW

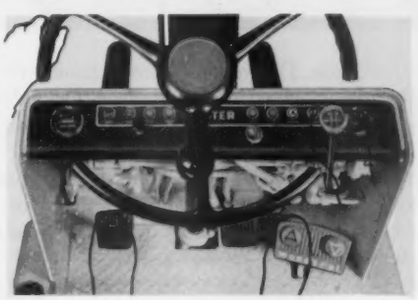
SpaceSaver 30 40 50

with

monotrol

...the exclusive Hyster control system that sets a new standard for lift truck safety and performance.

NEW from the big cushion tires to the top of the rugged upright, Hyster SPACESAVER 30-40-50 (3000, 4000, 5000 lbs. capacity) Trucks *lift faster* and *maneuver quicker and easier* than any other trucks in their class. "Human engineered" by Henry Dreyfuss, industrial designer, for safety and operator efficiency.



The revolutionary MONOTROL system for the first time eliminates unnecessary and unnatural driver motions. Forward-reverse and speed are *right* foot controlled by Monotrol pedal. Driver's hands are free for full-time steering and load control. Automatic parking brake is push-button controlled. Precision inching control with *left* foot pedal.

See the new SpaceSaver Trucks with Monotrol in action at the Material Handling Show CLEVELAND— June 9-12

Write to

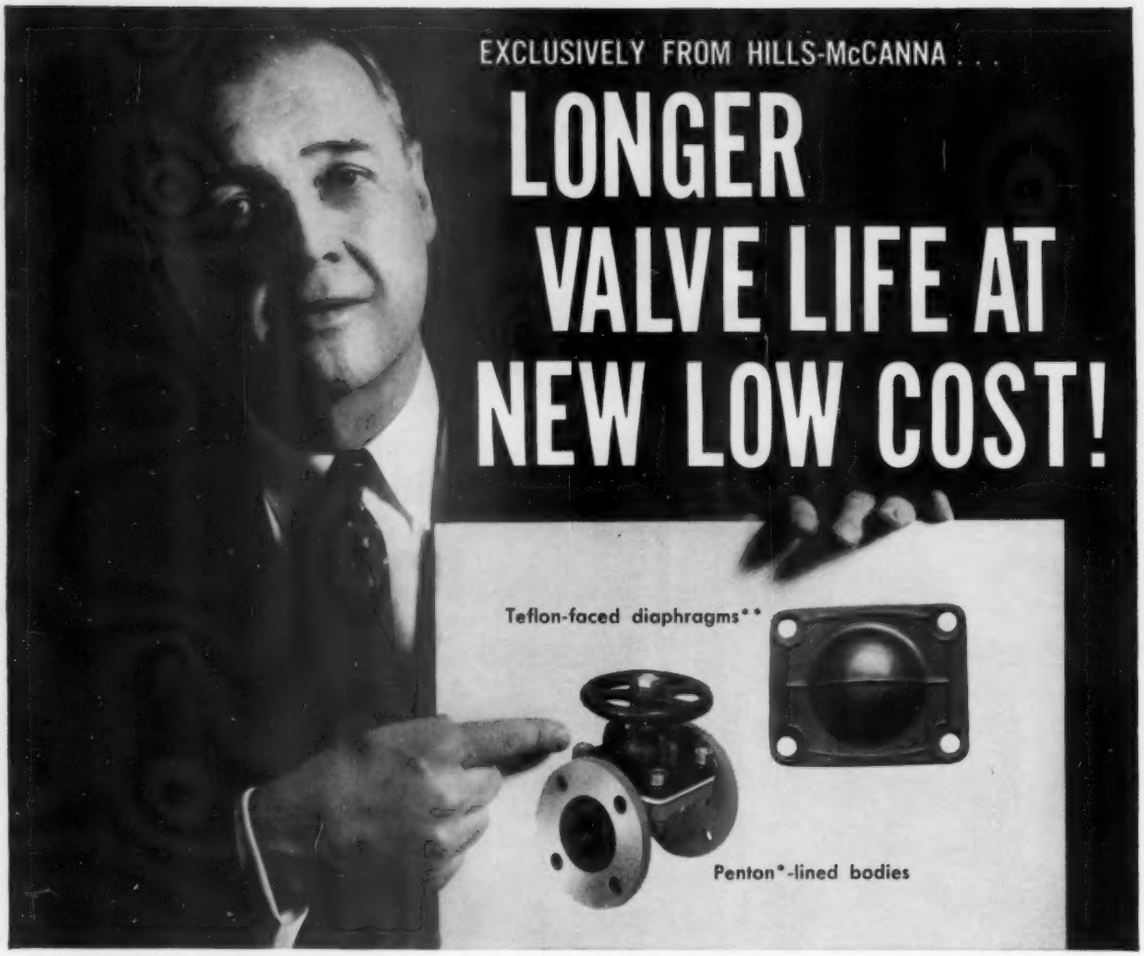
HYSTER COMPANY, P. O. Box 847, Danville, Illinois

HYSTER®

INDUSTRIAL TRUCK DIVISION

MOVING AHEAD WITH INDUSTRY

Factories: Portland, Ore.; Danville, Ill.; Peoria, Ill.; Kewanee, Ill.; Glasgow, Scotland; Nijmegen, The Netherlands; Sao Paulo, Brazil; Sydney, Australia (licensee)



Hills-McCanna Diaphragm Valves—lined with Penton plastic and equipped with one-piece Teflon-faced diaphragms—are ushering in a whole new era of extra valve life and lower valve costs.

PENTON-LINED VALVES are suitable for operating temperatures up to 300°F. Penton-lined valves will save you money because they meet many service requirements that formerly called for costly stainless steel or glass-lined bodies—yet are competitively priced with rubber-lined valves. In addition to having superior corrosion resistance, they are non-contaminating—cannot affect a product's taste, aroma, or color—work equally well with metallic, plastic, glass or lined piping.

TEFLON-FACED DIAPHRAGMS are suitable for temperatures up to 240°F. They can handle concentrated sulphuric or hydrochloric acids, chlorinated hydro-carbons, and esters. The Teflon facing is permanently bonded to an elastomeric backing—provides long life, assures positive closure. Teflon-faced diaphragms save you money because they often meet the same service requirements as solid Teflon diaphragms at much lower cost.

*Penton is a registered tradename of Hercules Powder Company.
**Patent applied for. †Teflon is a registered tradename of E. I. Dupont.

FIND OUT HOW TO MAKE BIG COST-SAVINGS with packless, drip-tight Hills-McCanna Diaphragm Valves. See how these simplest-of-all valves can help you make important savings. Ask for new Bulletin 115 today.

HILLS-McCANNA COMPANY
4624 West Touhy Avenue • Chicago 46, Illinois

Manufactured and Distributed in Canada by International Equipment Company

hills-mccanna company
THE PEOPLE WHO KNOW AND CONTROL FLOW

FINEST LETTERHEADS...

begin with Glidden Zopaque® Titanium Dioxide

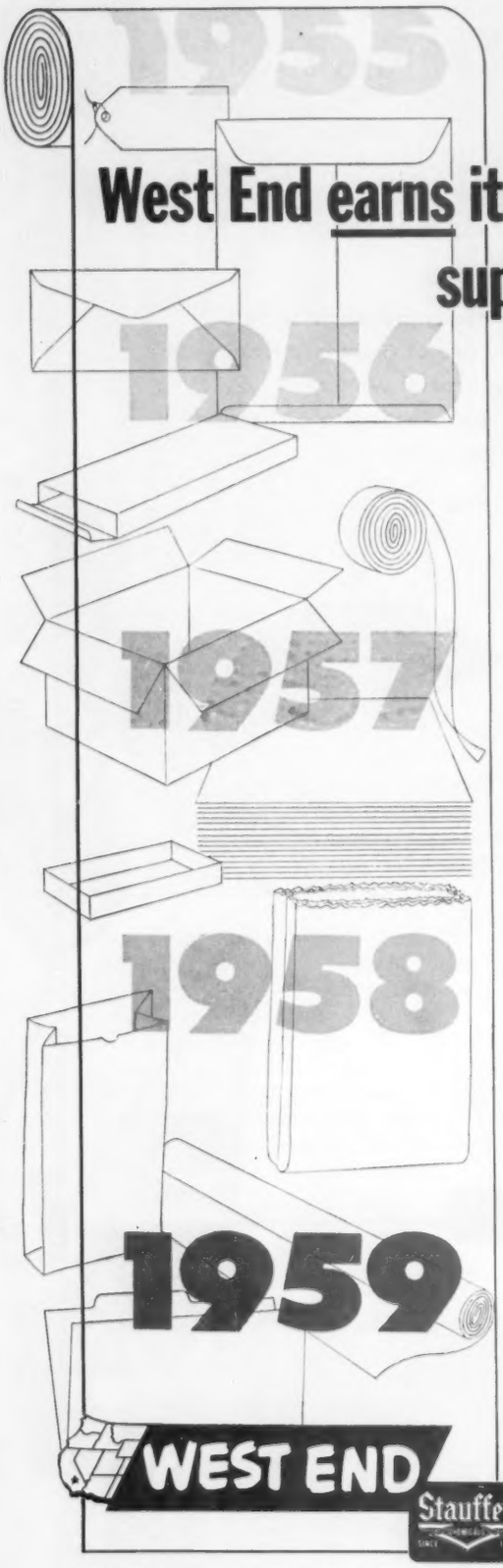
Letterheads that make the most favorable business impressions need the look and feel of quality made possible by the use of Glidden Zopaque Titanium Dioxide. Zopaque imparts high opacity, greater whiteness and brightness, and minimizes show-through. The outstanding dispersion characteristics of Zopaque assure smoother paper surfaces.

Write for full facts on the many advantages of using Glidden Zopaque Titanium Dioxide for the manufacture of business letterheads and other fine quality paper products. Zopaque is available in various grades specially developed for coatings and beater addition.

QUALITY Glidden PRODUCTS

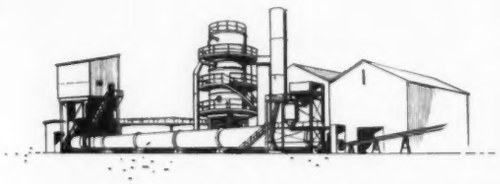
FINEST PIGMENTS FOR INDUSTRY

The Glidden Company
Chemicals—Pigments—Metals Division
Baltimore 26, Maryland



West End earns its position as a responsible supplier of salt cake

In 1955, with its first offering of salt cake, West End assured the Industry of an ability to meet long-term commitments based on vast natural raw material supply, ample production and storage capacity, rapid and efficient transport facilities. By unconditional fulfilment of every commitment for over 4 years, West End has conclusively demonstrated its complete reliability as a major source of highest quality salt cake. Every normal and unanticipated requirement has been met with equal ease and dispatch.



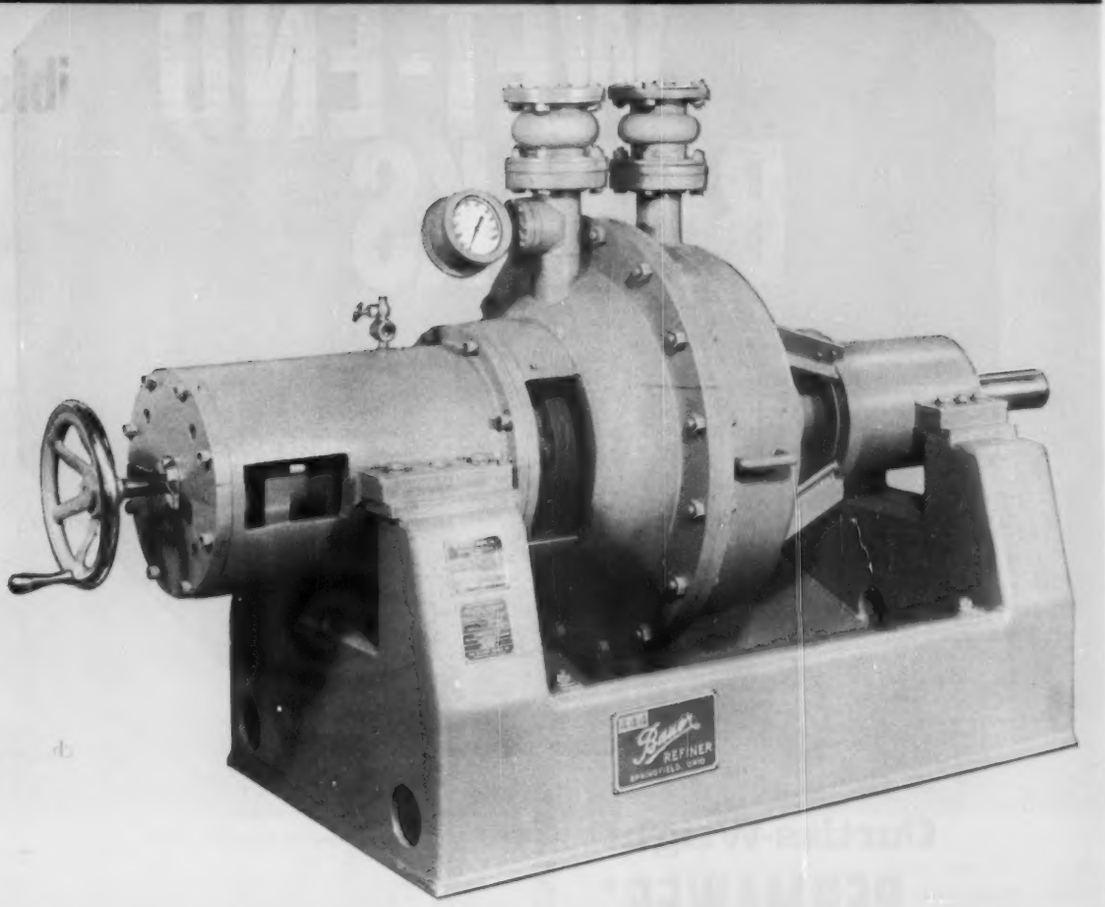
Today, with even larger facilities and a determination to maintain the reputation it has earned, West End is solidly qualified to handle any size requirement in a wide marketing area where it is a logical source of salt cake for kraft paper manufacturers. You are invited to consult with us on the over-all economics of using West End Salt Cake.

Stauffer

WEST END CHEMICAL COMPANY
DIVISION OF STAUFFER CHEMICAL COMPANY

EXECUTIVE OFFICES: 1956 WEBSTER, OAKLAND 12, CALIF. • PLANT: WESTEND, CALIF.

A NEW 24" BAUER PUMP-THROUGH REFINER



FOR SMALL TO MEDIUM TONNAGE MILLS

A high capacity, slow speed, single revolving disc mill designed specifically to replace jordans.

- Unequalled for stock preparation
- Pulp capacity—Up to 50 T/D
- Degree of refining accurately and easily controlled
- Automatic or remote control optional
- Low operating and maintenance costs
- Wide range of uses

Write for descriptive bulletin.

THE BAUER BROS. CO., 1706 Sheridan Ave., Springfield, Ohio

Curtiss-Wright
PERMAWEB*

The complete-automatic Fourdrinier system that detects and halts wet-end breaks-then restores the paper web to its full width... all within 8 to 15 seconds.

Curtiss-Wright PermaWeb is engineered to fit the requirements of any Fourdrinier machine. There are no limitations on the types of paper or the speeds at which they may be processed. PermaWeb offers full flexibility.

Have you seen PermaWeb in action? A special film, made at the first PermaWeb installation, is ready for viewing.

Call, wire or write George Butler, Manager, Industrial Controls Department, Electronics Division, Curtiss-Wright Corporation, 638 Central Avenue, Carlstadt, New Jersey and he will arrange a private showing at your mill.

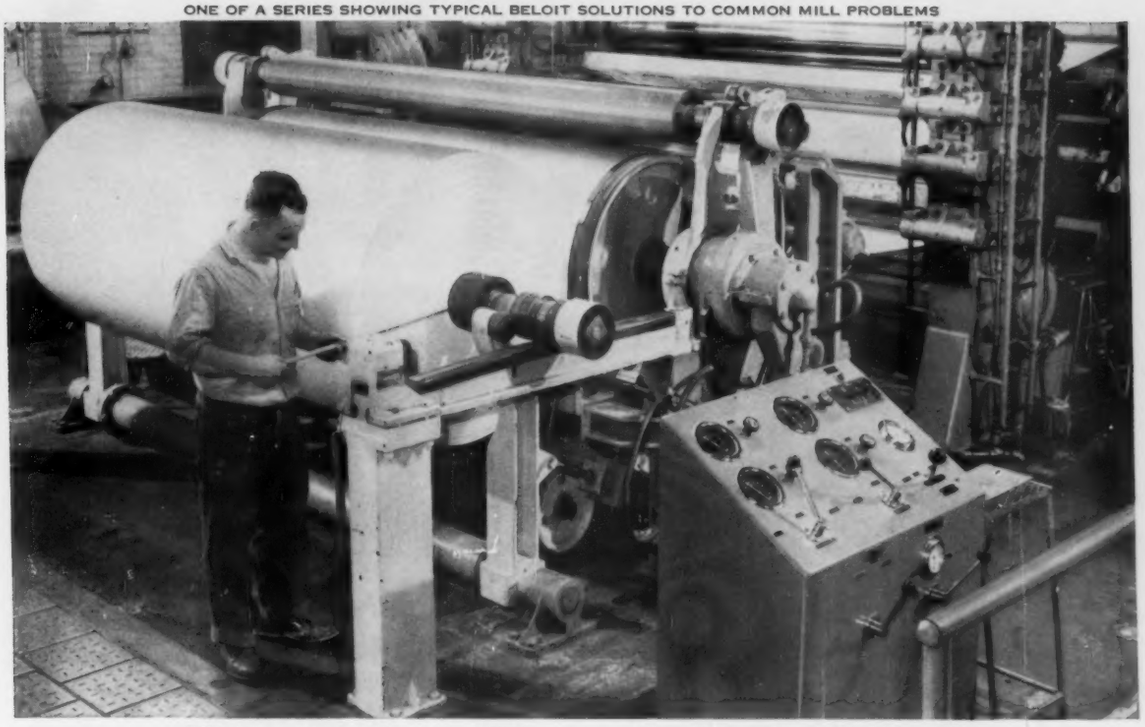
The paper industry's leader in basis weight and moisture control systems

ELECTRONICS DIVISION
CURTISS-WRIGHT
CORPORATION · CARLSTADT, N. J.

*Patent applied for.

BELOIT UNIT MODERNIZATION

ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



Beloit horizontal pneumatic reel for 108" fine papers machine at Wausau Paper Mills, Brokaw, Wis.

Losing paper because of poor starts at each transfer?

Roll bouncing and chattering against reel drum?

Roll hardness varying from spool to outer layer?

Sheet shifting and wrinkling on reel drum?

Now—5 Beloit Rail-Type Reels to help you solve these problems

If your present reel creates any of the problems listed here you can easily justify the low cost of a new Beloit reel. Beloit—originator of the rail-type reel—now offers five separate models. Each model is engineered by Beloit's experienced technical specialists for specific grades, widths, and speeds.

Beloit Rail-Type Reels Feature:

• Smooth shockless transfers—no loss of paper at roll center • Uniform-density rolls from spool to outside layer • Positive loading of roll in *both* primary and secondary positions • Cross-shaft connected primary and secondary arms for even reeling • Heavy rigid framework to eliminate chattering and maintain precision alignment • Large-diameter parent rolls up to 88" diameter . . . save winder-threading time • Beloit custom controls.

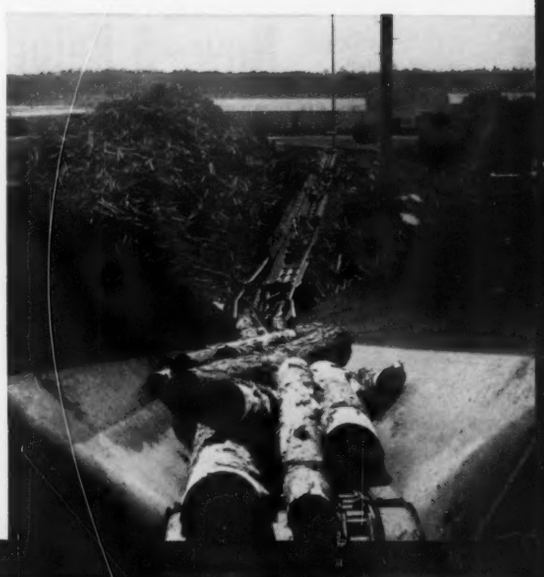
»ACT! *Write today for full information about the new Beloit reel for your machine.*

BELOIT
PAPER MACHINERY

your partner in papermaking

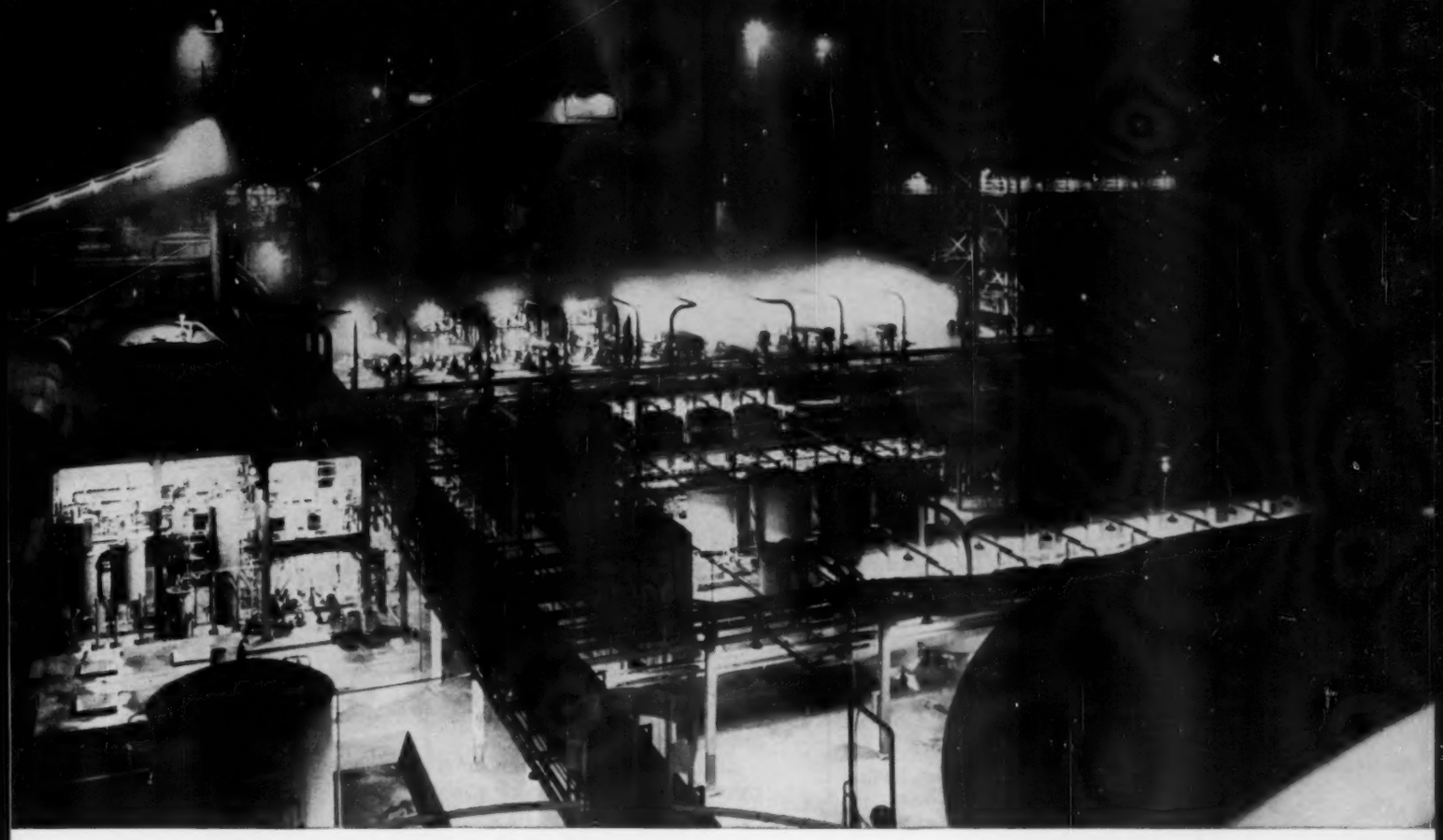
BUCKEYE

Buckeye doubles plant capacity at Foley, Florida



PULP

Bleached and Semi-bleached Kraft from Southern Pine



Both units utilize double-screening and improved 8-stage bleaching

Only the latest and most advanced equipment has been utilized in Buckeye's newly completed expansion at Foley, Florida. Throughout the entire mill, nothing has been spared in design, equipment, and quality controls for producing the finest Southern Kraft. New features include special double-screening to insure pulp cleanliness followed by a unique 8-stage bleaching process to give top brightness and high strength.

The expanded production facilities are backed by Buckeye's extensive research in both pulp technology and forestry. This research program, unsurpassed in the industry, has helped Buckeye attain new levels of pulp strength, cleanliness, and brightness today... promises even higher levels tomorrow.

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BUCKEYE CELLULOSE CORPORATION, Memphis 8, Tennessee

Wood pulp plant at Foley, Florida • Cotton linters plant at Memphis

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Increased Brightness

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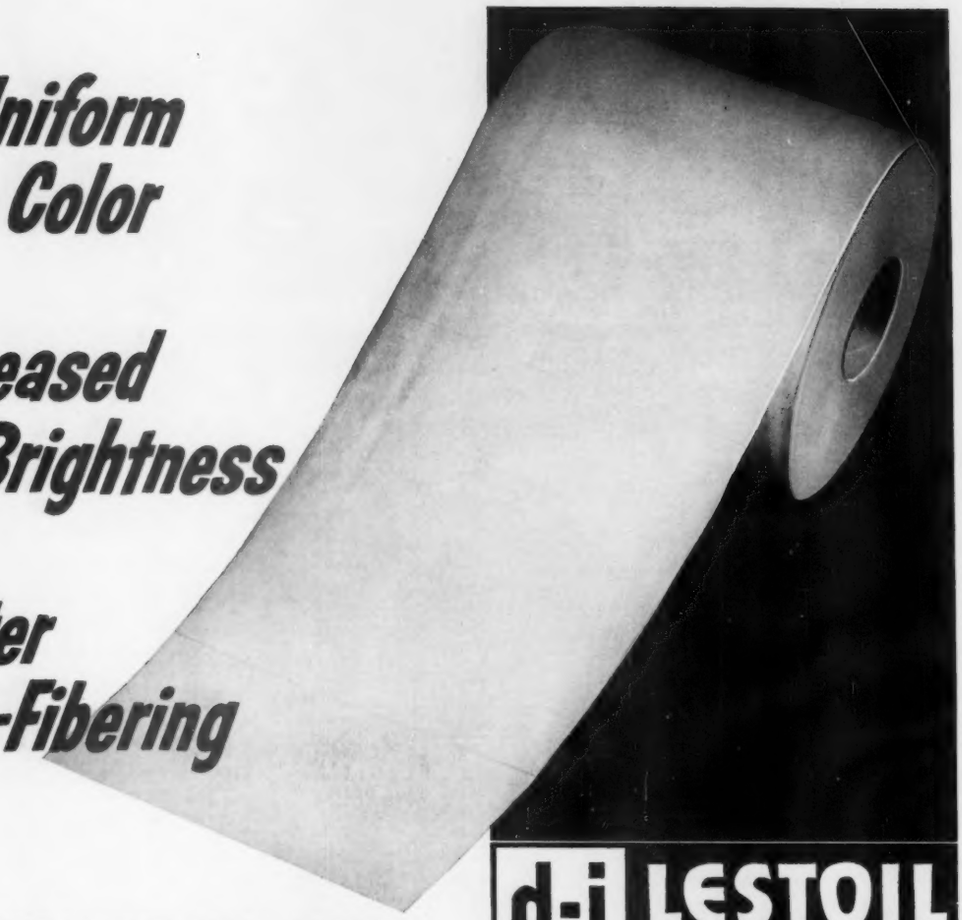

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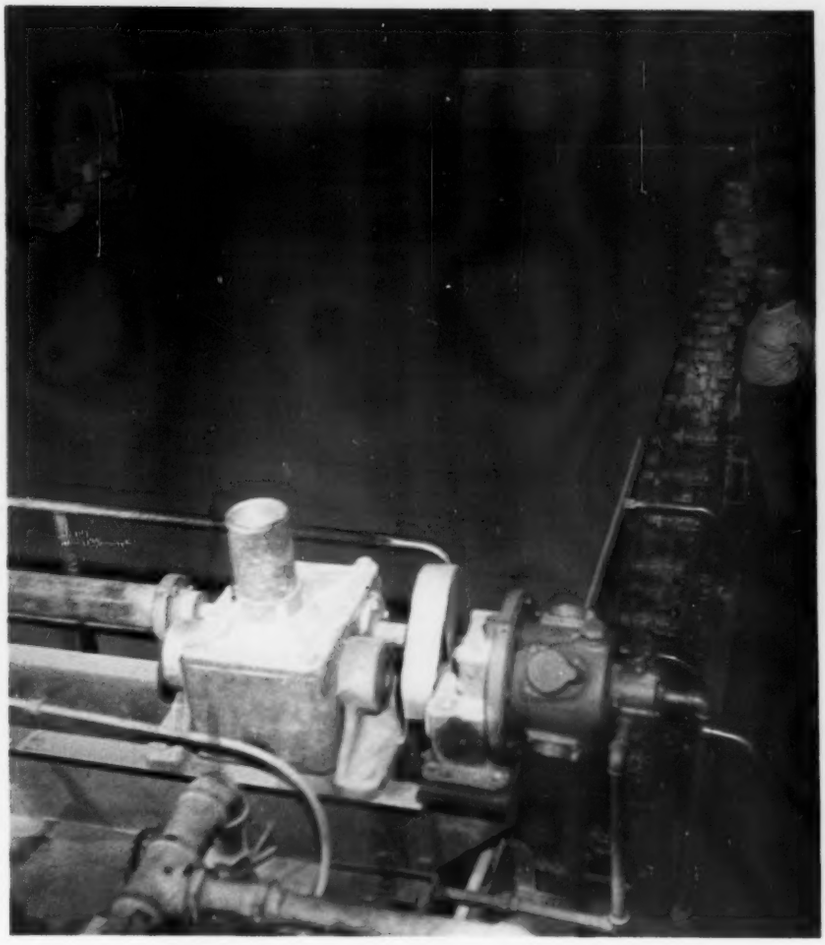
DRAMATIC MOMENTS IN PAPER-MAKING PROGRESS



Completely new or completely rebuilt, the first production run on a paper-making machine is an exciting event to everyone concerned. To Fraser Paper, Ltd., owner of this rebuilt Fourdrinier machine, the speed of its first run (1500 f.p.m.) and its faultless operation are deeply satisfying.

To Pusey and Jones of Wilmington, Delaware, who did the work, the event is no less important. A completely new Fourdrinier with 228-inch-wide wire 100 feet long was installed, after pre-assembly at the Pusey and Jones plant. A vacuum pickup and an after-dryer section with completely enclosed gearing were added. The entire machine, from headbox to reel, was carefully inspected and parts replaced whenever necessary.

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Left, Above: *Wire width of rebuilt machine is 228 inches, wire length, 100 ft. Machine is in Fraser Paper's mill at Madawaska, Maine.*

Right, Above: *Overall view of 2000 f.p.m. machine which was completely rebuilt by Pusey and Jones for Fraser Paper, Ltd.*

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Editor Reports from Russia

- Meets with Gosplan chiefs
- Visits condenser paper mill
- Sees dry papermaking process
- Many women workers in mills
- Twelve new mills planned
- Pulpwood exports to increase

By ALBERT W. WILSON
Editor, PULP & PAPER and
PULP & PAPER INTERNATIONAL

Leningrad

• In several days' visit in Moscow, and later in Leningrad and in the country around Leningrad, including a visit to a paper mill, I was cordially received by Russian pulp and paper engineers, planning commission executives, research institute officials, the paper mill staff and others. I am certain that all of them answered the many questions I had to ask to the best of their ability. They had many questions to ask me, too.

It is readily admitted by the Russians who are responsible for the development of the pulp and paper industry in this country that they have far to go to catch up with some of the European industry.

I was told that they want much more paper for publication of books and that they have a serious lack of wrapping paper, carton papers, containers and box board, as well as the white papers for printing and other purposes

The new seven-year plan which was initiated in 1959 calls for a 9% to 10% increase in pulp and paper production each year. With a per capita consumption of paper at present of only 31.5 lbs., it is quite obvious that Russia is considerably behind the Northern European countries.

Meeting with Gosplan Members

In Moscow, I met with six members of the Gosplan, which is the State Planning Commission. These six men are the chiefs, assistant chiefs and engineers of the Pulp, Paper, Paperboard and Forestry divisions of Gosplan. Also present was the editor of the Russian paper industry magazine.

We sat around a large table in the meeting room of the State Planning Commission for two and a half hours. It was a free give-and-take. The meeting started with one of my hosts expressing the wish that the "coldness" between some of the Eastern and Western countries could be thawed out. Of course this was a reference to what is so often called the Cold War. I responded that I didn't think we could do much about the matter at our little session and certainly that none of us present would have any great influence, and this brought a smile and an immediate relaxation in the atmosphere and from then on we did not touch on any political subjects. It is well known, however, that the Russian economic policy will be influenced by political decisions.

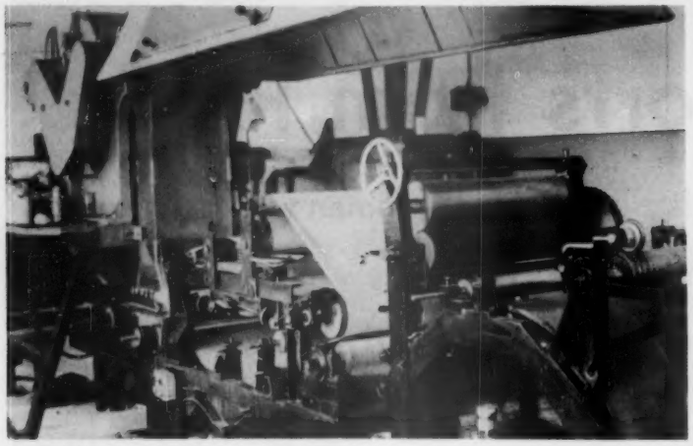
PULP AND PAPER CHIEFS OF GOSPLAN (Russia's State Planning Commission) meet with Albert W. Wilson, editor of PULP & PAPER and PULP & PAPER INTERNATIONAL. From left, V. G. Sasonko, paper projects engineer; N. N. Shistyakov, assistant chief of Forestry, Pulp and Paper Div., and a cellulose expert; Mr. Wilson; V. A. Galasiev, chief of Forestry, Pulp and Paper Div.; V. N. Shulgin, assistant chief of the division and also head of the papermaking sub-department; H. Djalilov, senior engineer, Timber, Paper and Woodworking Industry department.

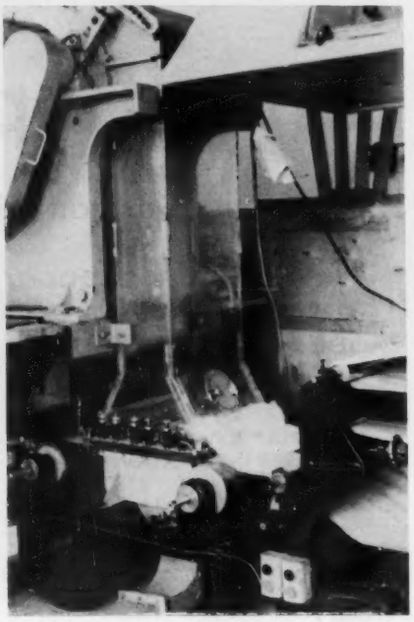
Export Plans

Also in Moscow, I had a session with President Nitchkoff of Exportles (exports of forest products of all kinds). He expressed a desire for more world trade, but he did say there would be very little change in immediate future years in the exports of pulp and paper from Russia. And he emphasized that his country is a net importer of pulp.

However—and this was somewhat of a surprise—he said that the exports of logs from Russia would continue for many years to come. "As a matter of fact," he said, "I expect we will ship logs to the United States." He indicated the shipment of Russian wood to France, Germany and other European countries would continue. There has been some feeling in the European countries that I visited that Russia would tend to make more pulp and paper and have less wood available for export.

RUSSIA . . . many women workers . . . mill building plans





DRY PROCESS PAPER MACHINE in Leningrad Institute. (Above) Air borne pulp is drawn down on wire by vacuum to form sheet, then passes through a sizing bath and dryers. Several such machines are making electrical papers now in mills. (At right) Here is where air borne fluff is drawn downward by vacuum on wire to form sheet. Pulp is in glass enclosure above wire.

Dry Papermaking Process

In Leningrad, I visited the Central Pulp and Paper Institute where I was shown a pilot paper machine which is used in making what the Russian technicians describe as the "first dry process in making paper." However, it is a fact that the A. B. Dick Co. in Chicago has made a dry process paper although I cannot say whether the two processes have any similarity. The process in the Leningrad Institute was featured by air conveying of pulp and then a use of a vacuum to bring the floating pulp fibers down on a wire for formation of the sheet. Following this the paper web went through a sizing bath. And later on there was a second sizing bath, if deemed necessary. The product of this dry process machine is mostly electrical or special technical paper.

The machine, they said, runs at a speed of 25 meters a minute and they showed me part of it in operation. Actually this was the essential formation part. Here the vacuum brings the pulp fibers down to form a mat on the wire. Glass or other similar fibers are often used. This machine was about 2 ft. wide, and they say that a new one will run 70 meters a minute. They also declared that there are six of these dry process machines already in use.

The second bath of what they called a lime liquid sizing is to make the papers stronger than normal. They showed me results and the paper has considerable strength in both directions, which is a natural consequence of the fact that the formation is not done in a normal way of a flow in one direction.

Also in the Institute they showed me an ultra-violet microscope which they said reflects colors without the use of any dyeing or coloring additions, and they added "You do not have this in any of the Western countries."

The librarian of the Institute told me they have 106,000 technical books.

Visit to Condenser Mill

One day in Leningrad I was taken on a trip of 36 kilometers to the south to visit the Communar Mill, where they make electrical insulation and condenser paper down to 5 or 6 microns thickness (though when I visited there, I was told the product was of about 12 microns thickness). There are six machines, each exactly alike, 1816 mm wide and all Fourdriniers. Each one carried a Russian trademark. They told me that two of the machines were recently built in Leningrad, but they were all in such wonderful shape and apparently painted up and improved that every one of the machines looked new. The only equipment from outside Russia which I saw in the mill was Siemens drives from Germany and Goebel winders.

The Communar mill runs seven days and seven nights a week. A woman is head of all machine production. I was also introduced to another woman who was described as boss machine-tender on one of the six machines.

Later I saw a woman threading a supercalender, which is work usually reserved for men and is considered quite dangerous. Also a woman was head of the experimental laboratories. About 70% of the workers in the mill are women.

Incentive Plan for Workers

At both this paper mill and the research laboratories in Leningrad I saw a wall of pictures of honored workers. In this way, attention is called to the best workers and their pictures posted for all to see. The better workers earn more pay than those who are slower.

The average wage in this mill, I was told, is 900 to 1000 rubles per month. But the better workers make up to 2000 rubles and are also given a great deal of publicity and attention. (Ten rubles to $1.00 is the exchange for tourists.)

There are about 70 engineers employed in the mill, and about 20 people in the laboratory for production controls.

One of the interesting things at this mill was a room devoted entirely to displays of tapestries and souvenirs from China. I was told the Russian workers went to China to help them build a similar condenser paper mill and as a result these presents were sent to the Communar mill.

Another item of interest about this mill is that the entire plant was taken by the Germans during the war, to a site in East Germany. However, before the mill could be installed in Germany and started up, the war ended and the machines were brought back to Russia.

The trip to this mill was a most interesting one through the Russian countryside. One of the towns that we passed through was Pushkin Town, where the famous Russian poet Pushkin studied in the lyceum. Here was the summer home of the Russian czars and a park which, according to legend, Empress Catherine ordered built over night because she didn't like the outlook of level ground—and so the rivers and little hills and trees were moved around to change completely the perspective. (Very likely mostly legend.)

This little town was quite pretty, in contrast to the plain and poorer looking villages we passed through. The mill I visited is in the town of Antropshino, a few miles beyond Pavlovsk.

COMMUNAR MILL AND VILLAGE OF ANTROPSHINO, 36 kilometers south of Leningrad. Reconstructed since war, this 6-machine mill makes condenser and technical papers.

Building 12 New Mills

Returning to the interview I had with members of the State Planning Commission, I was told that twelve large pulp and paper mills are being built this year in Russia. Most of these are in the Ural mountains area, close to the wood resources. However, four of them are to use reed and are being built in the Astrakhan, Caspian Sea and Ukraine areas. The reed is *aronda donax*, which the Russians call "kamish" and which grows about 10 ft. high and is cropped every year. I was told that Russia has a 50 million tons potential in this reed. This is the same reed which is being used in Italy.

Two new machines in Russia will make coated papers by the Peter Massey process. This is a process which was first used in the United States by Consolidated Water Power & Paper Co. It is a letterpress on-machine type of coating. Both of these coating machines are to be 4200 mm wide and the Russians told me that they are being built in Soviet Russia. One is to start up by the end of 1959.

There are 24 paper mills in the Leningrad district. One in Leningrad makes newsprint on two machines which operate at 300 meters per minute. The pulp for these mills is produced in mills farther north including operations near Archangel.

A number of board mills are being built and most of these, going up this year and in the near future years under the seven-year plan, will use semi-chemical processes. I was told that both chemi-groundwood and semi-chemical pulping of hardwoods would be used.

PRESIDENT NITCHKOFF of Exportles, export agency for wood, paper and pulp, is at left; on right is his assistant.

Will Make Own Equipment

It is also planned to build a huge plant to make paper machines and jordans, winders, supercalenders and all equipment for the paper mills in the Ural mountains section, close to the new mills. The probable location of this new plant is Izhezst. I was told that none of this machinery would be exported. Cellulose machinery will be made at factories which are now making equipment for chemical plants.

Meanwhile, Russia has ordered 12 machines from European manufacturers, also continuous digesters, and stationary digesters. In Stockholm I saw two big digesters on a barge about to be floated to Russia for delivery.

I was told that the twelve digesters of 330 cubic meters capacity each, being built in Karlstad, Sweden, for Russia will not be anywhere near the total number needed. But they said more digesters will be made in Russia. These bi-metallic, steel cladding digesters will be used for acid sulfite pulp.

Favor Rayon Tire Cord

One of the new ventures in Russia will be the production of rayon tire cord. I was asked whether synthetic cord or the wood fiber cord was proving more successful in automobile tires in the Western countries. At present, the woodpulp base fiber is winning the "battle" with the synthetic cord. The Russians are going ahead with wood base tire cord production.

I was told that there are some 300 mills now in Russia and about 50 cellulose mills. But many of these mills, my informant said, are very small and a large number of them are being reconstructed, because of old equipment and old processes.

Three mills, especially, are being reconstructed for bleached board.

Most of the old mills which are being reconstructed are in the central part of Russia. The new mills will be in the more remote areas, as I said, in the Ural mountain area where the forests are located. Heavy cutting of forests in the wars especially and in the past years in the areas around Moscow and the western parts of Russia has necessitated the movement of the industry eastward.

Emphasize Research

The Central Institute of Pulp and Paper Research in Leningrad has just recently been installed in a new home. In fact the staff had moved into the building even though it isn't finished. However, the rooms in which they are working now are comfortable although a great amount of work needs to be done. Over 400 people are employed here and all are graduates from higher schools; 76 have scientific degrees. There are several pulp and paper laboratories, also laboratories for sulfite and sulfate production, for semi-chemical and groundwood, for viscose, etc.

The new laboratories—typical of many such buildings in Russia—have a structure of rather plain features. It really doesn't look new, because there is a tendency to avoid ostentation or elaborate architecture for such edifices. It covers an area of 6000 sq. meters and has two basements and three floors above that.

Plans for another laboratory in Leningrad are underway. I did not obtain any detail on just what is going in this laboratory but it will be devoted to pulp and paper activities also.

One thing should be remembered is that forestry and related sciences in Leningrad date back to the time of Peter the Great. Besides this Pulp and Paper Institute there is also a Forestry Academy of Leningrad which last year celebrated its 150th anniversary. This academy has 3000 students who are studying forestry, pulp, lumber production, papermaking, etc. and it is situated on beautiful grounds in this most attractive of all Russian cities.

There is also in this city a Technological Pulp and Paper Academy, which is 20 years old, and many specialists in the Central Research Institute came from this Academy. Here they receive degrees as diplom. engineers—similar to other European countries. After more years of study they may receive a title as Candidates of Science. Then after more years they must write a thesis and they then obtain a doctorate degree, all this over many, many years.

At the Forestry Academy there is a huge park of 40 acres where many species of trees are being cultivated. Many of these trees are 150 years old—the same age as the Academy. Other nurseries and tree culture institutions are located in Crimea and the Caucasus. In Leningrad there are also large botanical gardens with trees and plants from all over the world.

In Moscow there is a less important pulp and paper research institute.

I was also extended an invitation to visit a large newsprint mill in the industrial city of Gorki, about 400 miles from Moscow. But one day after I received permission for this trip I was notified that the mill was shut down for repairs; the trip was cancelled.

Some General Observations

I will have further reports on my visit to Russia and more details on the subjects discussed in this article in a future issue. But in conclusion, for this month, perhaps it would be in order to make a few general observations.

I was given complete freedom to move anywhere I wished in Moscow and Leningrad. As a matter of fact, in Moscow, I did go alone by taxicab to the home of an American newspaper friend. While there is a great deal of construction along the main thoroughfares which tourists see in Moscow—row on row of huge apartment houses going up—one will find poorer dwellings, and even slums, in the back streets, just as you will in such cities as London, Paris and Chicago—probably most other cities in the world.

A terrific construction program is going on, however, to put up new dwellings. These new apartments are vast affairs, with inner courts, and these should improve the living of many of the inhabitants of the capital. One seldom sees gardens in Moscow. But these new structures will have attractive courts in the interiors. Along the main street fronts are stores of all kinds.

In roadwork, many women were seen working.

Some Russian Viewpoints

I soon learned in Moscow that there is not much point in getting into political or philosophical discussions,

AT LENINGRAD'S CENTRAL PULP AND PAPER INSTITUTE (from left): Ivan Jereshin, economist; Mathieu Eliashberg, cellulose expert and department chief; Peter Larin, viscose pulp specialist; Benjamin Summ, mechanical engineer and secretary of the Institute, a Latvian.

How Purchases Are Made for the Russian Industry

First the Gosplan Pulp, Paper and Forestry Division makes a long-term plan. Gosplan is the State Planning Commission.

Then the budget is fixed, "by the parliament."

Then the long-term program is turned over to the Gibrogum, engineering office for the whole of Russia, which draws up the program of purchase for the immediate year ahead on the basis of this budget.

Finally, the Technoproimport, in Moscow, orders the equipment. This agency acts merely as a purchasing agent, following the directions from the Gibrogum.

As regards purchase of pulp and paper machinery, the Gibrogum's top men are Chief Manager Sarin, and Chief Engineer Svetkoff.

although I will say I did not seek them. Occasionally, over a vodka and a dish of caviar, my associates would bring up those subjects which are controversial between the Eastern and Western world. One soon learns that the word "colonist" is a nasty name, in reference to the Western nations' colonizations in Africa and Asia and other parts of the world. The "colonists" are blamed for whatever backwardness exists in those parts of the world, regradless of the fact that they may have been there only one or two centuries, or even less time.

Also, one learns rather quickly that capitalists and munitions makers and war mongers are virtually synonymous words, and it is a waste of breath to try to explain that Western world manufacturers would much rather build pulp mill digesters and pulp mill pressure vessels than bombs. I am quite sure that it would probably take a generation to change the viewpoint of most Russians as regards Western civilization. They are convinced that the Western nations are simply victims of mismanagement and disorderly government. Also, the Russians I met were serious at virtually all times.

One observation I would like to record is that I saw many people in Russia reading books. I do not know what the books were, but I found people in the very famous marble, stainless steel and sculpture underground railway stations and in the underground train, which I rode occasionally, reading books. These were poor people as well as people who were well-to-do.

On the streets I saw people walking along with a book open regardless of oncoming traffic. There is no doubt that these people enjoy reading and it seemed to me there was at least as much reading done in Russia as anywhere I have been in my travels.

Snapshots from the Editor's Album

These pictures, as well as the others illustrating this "Report from Russia," were taken by Editor Al Wilson

"LUCY" WAS INTERPRETER in Leningrad. It was her first—and probably last—assignment taking a visitor to a paper mill.

TOWER in the Kremlin area.

ANATOLE was the interpreter in Moscow. Usually girls are interpreters but he was specially selected for a "cellulose tour," as it was called.

BEAUTIFUL LADY TAXI DRIVER poses for the editor.

MOSCOW VIEWS. Left, looking down from editor's room on 27th floor of new Ukraine Hotel, biggest in Europe. Moscow River winds through city. At right, view of Kremlin area.

COATING CONFERENCE REPORT

Up, Up Goes Coating

- Biggest coating conference yet
- New Kohler coating process
- Coated paperboard statistics
- Southern coating grows
- Newsprint on verge of coating
- On- or off-machine coating
- New Swiss coating process
- Trailing blade still hot

By MAURICE R. CASTAGNE
Eastern Editor, PULP & PAPER

• The pulse of coating has never beaten as rapidly as it is today. Without doubt, the U.S. coating industry, estimated to be well in excess of 5 million tons/year, is in a major upheaval. Some say it is the biggest revolution since the birth of machine coating in the Thirties. And coating is moving ahead so fast that new developments in coating machinery, pigments and adhesives are being made almost daily.

Triggered by the trailing blade coater, this upheaval is making a terrific impact upon publication papers, Southern kraft—even newsprint—mills are looking at coating. Just consider the effects of the coating boom now blooming south of the Mason-Dixon line. This publication estimates that some 15 Southern kraft mills are now coating. One coating specialist says there's hardly a bleached board mill that doesn't have a coater in or on order. A leading clay salesman says that within three years his industry will be straining capacity to keep up with demand for clay for coating.

There is no wonder then, that TAPPI's Tenth Coating Conference drew more than 800 (actual registration: 801) to the Hotel Statler in Boston May 24 to 27. Highly significant: ratio of mill men to suppliers was about 1 to 1. Coating and non-coating mills were there; some "just looking," others on the verge. Delegates came from the U.S., Canada and Mexico; Japan, Australia, Norway, the United Kingdom, West Germany, Sweden and Italy.

Trailing Blade Hot as Ever

An accurate appraisal of the significance of the present coating revolution must consider the trailing blade coater as the primary propellant. The rise of this coater, spawned in the Madawaska, Maine mill of Fraser Paper, Ltd., has been phenomenal. Fraser pioneered its use on breadwrap and other waxing converting grades. From there the torch was tossed to Blandin Paper Co. at Grand Rapids, Mich.

Blandin has carried the torch well. At that time, it was a groundwood converting mill. Now it is 100% coating with two Rice Barton trailing blade coaters in operation, and eyeing a third unit.

At the TAPPI Coating Conference in Philadelphia in 1956, the trailing blade coater at Blandin was the main topic of discussion. A year later, this publication reported that the Milwaukee Coating Conference almost talked about nothing else and that more than 20 units were either on order or in operation. In 1958 at the Bedford Springs Conference, trailing blades were again the rage and by then the number had risen to 45 units.

Still pushing into new fields, trailing blade coaters in operation or on order, in an educated guesstimate by this publication, now total something like 90 units. This includes probably 7 to 10 units for mills outside of the United States. Japan is scheduled to start up its first trailing blade coater next spring. This will be a 145-in. Rice Barton-Eck off-machine unit with a Gardner dryer for coating magazine and book papers. Italy too, is getting its first trailing blade coater, this too, by Rice Barton-Eck, a 120-in. unit for publication grades, and with Gardner dryers. It is due to start up this fall at the Cartiere Prealpine mill near the Swiss border.

One major coating mill considers the trailing blade coater to be the most significant development in the coating industry in 20 years; says it is so good that they are installing at least 6 on-machine coaters. Demand is so great that this mill is getting orders from their customers marked, "must be blade coated."

On- or Off-Machine

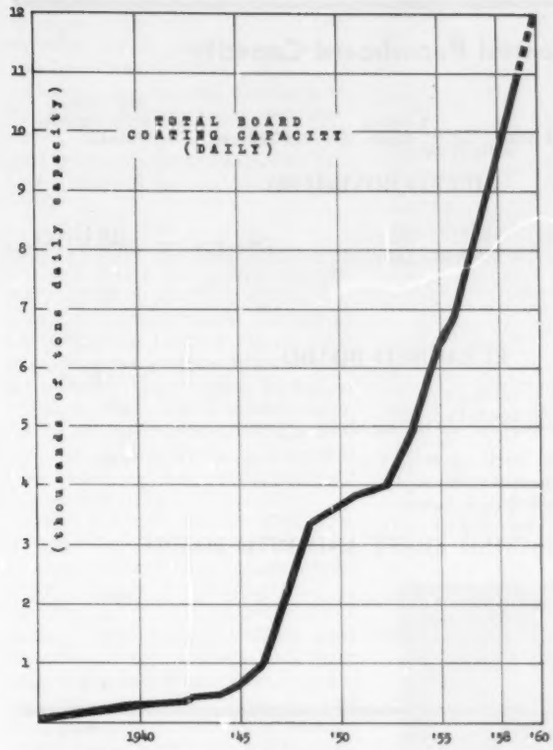
One problem discussed in the questions and answers sessions and in the corridors was on- or off-machine coating. Some mill men say this is the most difficult decision to make in considering a new coater. There is no "pat" answer; there are too many variables to consider. Off-machine coating does offer greater versatility and flexibility, allows a mill to roll with the economic punches that tag along with changing grade demands.

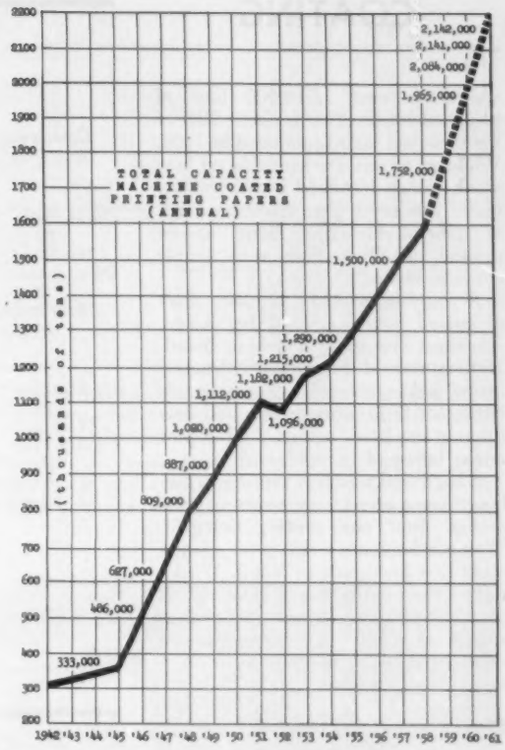
Off-machine may be the answer for a mill that has heavy capital investment in existing machines. This is the route taken by Blandin and Oxford Paper Co. In Oxford's case, it had quite an investment in several on-machine coaters. It installed the North Star trailing blade coater, a 150-in. off-machine unit, and now applies the ground coat on the paper machines and the top coat on the North Star.

At the meeting some were saying that on-machine coating is the answer for a new mill starting from scratch and if the bulk of its production will be for long runs of one grade and weight. For such an installation, capital investment would be less.

Coated Paperboard

For years figures on coated paperboard capacity and production have been as elusive as chasing after a butterfly with a baseball bat. Coated paperboard production figures are still nebulous to pinpoint, but at Boston for the first time, an accurate estimate of coated paperboard was made available. In the opinion of many coating specialists this was a report that had





COATING CURVES AHEAD . . . as shown in these charts. U.S.A. coated paperboard capacity tonnages are available for the first time, taken from capacity survey by Dr. William H. Aiken, director of research, Diamond-Gardner Corp. At right, printing papers continue their steep upward growth.

top significance at the Conference.

One coating specialist told this publication he was "just aching" to get his hands on Dr. Aiken's paper. Dr. William H. Aiken, director of research for Diamond-Gardner Corp., conducted his own survey of coated paperboard capacity. He estimates that coated paperboard capacity now exceeds 3.4 million tons and confirms a prediction made by this publication last year that coated paperboard production would soon outrank coated printing papers.

Big reasons for coating paperboard are to dress up the board stock and to enhance printability. Folding or filled boxboard is used almost universally for printing. Until recently the only purpose for coating this sheet was to improve print quality. Now there is a trend toward coating methods which will not only improve quality but will give better hiding power and allow the use of fibers of lower brightness in the top liner. There has been a tremendous increase in the capacity of bleached board and folding boxboard. This overcapacity, says Dr. Aiken, has been the greatest stimulus in these times and has made the bleached board people modify their product to be more competitive.

Most paperboard today is coated only one side because of printing requirements; a small amount is coated on two sides for appearance. If you want to make a quality sheet of coated board, advises Dr. Aiken, you must first make a quality board. 100% softwood Fourdrinier bleached board is hard to print. Formation is of great importance in the printing quality of coated boards. It is a quality factor in that uneven formation will cause a mottled appearance especially on wet finishing. Formation deteriorates as speed increases, so efforts to get greater productivity have been counter to good quality coated board.

This is one reason, cites Dr. Aiken, for the tremendous amount of work going on on the design of paper forming equipment. "Some of the newer forming devices which give better formation and are run at higher speeds will certainly result in better coated boards and/or reduction in cost. These developments in forming equipment are areas to watch for trends in the future of coated paper," he said.

Coating Formulation for Board

A typical coating formulation would contain 15% binder and 85% pigment. Casein and soybean protein are widely used. Pigment composition would be typically built around a high white domestic clay and up to 25% of the pigment may be titanium dioxide.

"The trailing blade coater has had the most spectacular growth of all coating processes in the coating of board. With one exception, all installations have been used on bleached board. Since this coater has a levelling action, more coating is applied to the low spots than to the high spots. Therefore the body stock should be similar in brightness to the brightness of the coated sheet to prevent mottle. Streaking has been the major difficulty to overcome with the trailing blade coater," says Dr. Aiken.

Dr. Aiken's survey reveals that there is installed coating capacity on a 6-day week basis, to produce about 1,800,000 tons of coated filled board/year, which is about 73% of the total amount of filled boxboard produced in 1958. Actually, he says, only about 12% of the filled boxboard produced in 1958 was coated, indicating that on the average the coating capacity for filled boxboard was used only about 17% of the running time.

As for bleached board, by the end of 1959, there will be capacity in-

stalled to coat 1,510,000 tons of bleached board. This is about 98% of the bleached board produced in 1958. While no figures are available on how much coated bleached board was actually produced, Dr. Aiken says that in general bleached board to be printed, in other than very simple copy, is coated.

If you want to make a quality sheet of coated board, advised Dr. Aiken, you must first make a quality board. 100% softwood Fourdrinier bleached board is hard to print. Formation is important in printing quality and new forming machines will play a big part in the future of coated board.

A big trend which is causing paperboard some anxious moments is laminating. Said one coating delegate, "You can laminate a real good opaque sheet to a low grade of board. What's more, there's no speed limit. High speed laminating is now possible at speeds up to 1500 to 1800 fpm. Laminating machinery builders have more orders than they can handle."

Coated Paperboard Capacity

Companies	*Plants*	*Coating Units*	*Machines*	*Avg. daily capacity/machine (tons)*
FILLED BOXBOARD				
On-Machine				
22	33	98*	45	118
*80 Champion; 9 knife; 6 letterpress print roll; 2 gravure print roll; 1 trailing blade				
Off-Machine				
5		9*	9	49
*8 air knife; 1 roll				
BLEACHED BOARD				
On-Machine				
12	14	25*	18	290
*7 air knife; 2 gravure print roll; 16 trailing blade				
Off-Machine				
3**		6*	3	133
**Three of same 12 companies above				
*2 air knife, 4 trailing blade				
UNBLEACHED KRAFT AND JUTE BOARD				
On-Machine				
1	1	1	1	200
Off-Machine				
3	4	5*	5	67
*2 reverse roll; 2 air knife				

Swiss Curtain Coater

Considerable interest was stirred during the Coating Conference by Dr. Aiken's remarks on a Swiss coating process which has been used in the lumber industry and recently has been adapted for coating corrugated board.

One coating expert told this publication that this, the Steinemann coater, is the first new coating development since the trailing blade coater. In this process a pressure head extrudes a controlled-thickness curtain of coating material on the web as it passes beneath the head. Up to 50% solids and higher can be used. The pressure curtain applies the coating uniformly.

The original curtain coater was developed in a Swiss furniture factory to coat flat lumber panels by a Mr. Zehnder and his rights were purchased by Mr. Steinemann.

Variation on a Blade Coater

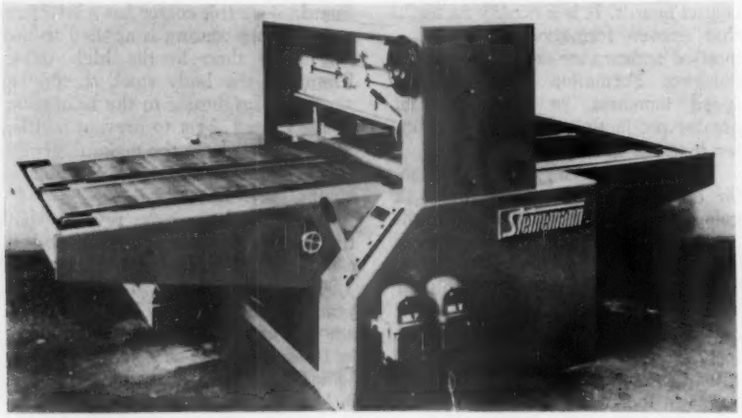
There was standing room only in the large meeting hall of the Boston Statler when details of the Kohler coating method were unveiled by John R. Gunning. He is supervisor of fine paper research at Abitibi Power & Paper Co. Ltd., Provincial Paper Section, Georgetown, Ont.

Basically, the Kohler system, developed by John B. Kohler, consultant, Woodstock, Ill., uses a fixed blade on the underside of the web with an air knife positioned above the sheet with the air stream directed directly on top of the knife. Mr. Kohler had long been intrigued by the possibility of creating a coater in which the film of coating would be attenuated by the same hydraulic wedge action which creates a film of lubricant in a slide bearing.

A 15-in. pilot unit has been in operation at the Georgetown mill for about a year. Coating colors made with starch, casein or casein-latex have been used. Letterpress and offset furnishes have been tried. Solids have ranged from 31% to 53%, with 46% to 51% being the desired range. Coating weights applied, reported Mr. Gunning, run from 2 lb. to 20 lb. The full range seems possible at any of the consistencies tried so far.

The product in the low range of coat weight looks much like the trailing blade work, said Mr. Gunning, but without bare fibers. Other advantages of this method are the small space required for the machine, ease of installation on existing equipment and no moving parts.

At present, according to Mr. Kohler, there are four units being built. Two



STEINEMANN CURTAIN COATER uses a pressure head with an air cushion to extrude a controlled-thickness curtain of coating material on web as it passes under coating head. Excess coating is caught in trough beneath the head, returned to the color reservoir and recirculated by a pump to the pressure head.

are 80-in. commercial units and two are 37-in. pilots with speed ranges from 1,000 fpm to 2,000 fpm.

There is one current drawback to the Kohler coater. When the web breaks, the air jet hits the coating pond splattering the coating color. Mr. Kohler believes he has this problem licked.

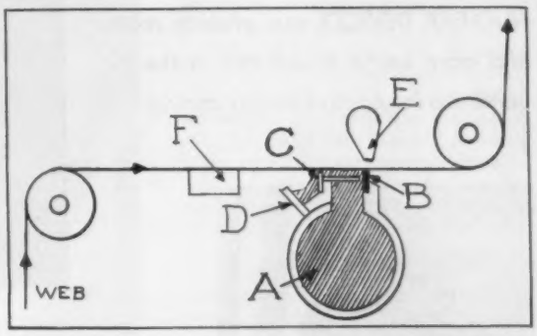
For the Future, a Challenge

Before taking the plunge into the cold waters of coating's future, Dr. Paul J. Thoma, technical director of the Springdale Laboratories of Time Inc., called for a re-evaluation of pulp and refining. The problem, he said, is to get the fibers into a suitable shape and to get them smooth. Weight concept, he challenged, is an outmoded basis. Time and Life would like their coated papers on a yard basis.

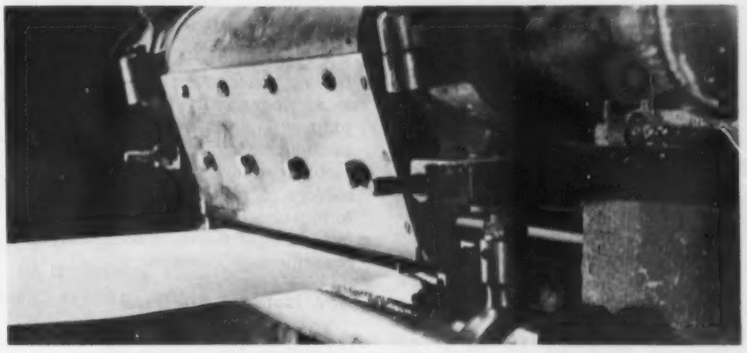
The challenge, said Dr. Thoma, is to reassemble the particular processes of papermaking to form a new whole. Time's interest, he conceded, and its opinions, are colored by their interest in machine coated papers. They want basically better printing and light weight. He drew laughs from his audience of papermakers when he said that publishers would like a machine coated paper with basis weight considerably less than 40 lb. but with the appearance, hand and performance of a 60 lb. brush coated No. 1 enamel.

Time's problem is that they want to reduce the basis weight from 40 lb. to 30 lb. They would like a 24 lb. base sheet with 6 lbs. of coating. But under present conditions, opacity would drop 2 points, showthrough would go up 50% and caliper would go down. There would be a loss in bulk and cross machine direction tear.

New Kohler System Coats Underside of Web



Coating color is fed through tube (A) to right of pound next to metering knife (B) and flows across pond bottom to fall over the back weir (C) into the catch pan (D).
Directly above the metering knife is the air knife (E) which controls the pressure of the sheet against the blade and establishes the coat weight. The uncoated web is steadied by a vacuum box which prevents wrinkles and stabilizes the web tension.



Compact coater needs only 30-in. of space in web direction, even for a wide unit. Kohler pilot unit at Provincial Paper at Georgetown, Ont., is 15-in. wide. Coating tube under web is only 2-in. dia.

Fish Thrive in Settling Basin Sludge

Tests were recently made to ascertain effects of sludge from settling basins on fish life. Motivated by claims that the aluminum hydroxide content could be harmful to fish—that particles of insoluble hydroxide plugs their gills, and claims of the possible toxic effect of this chemical—Northwest Filter Co. conducted the studies at its Seattle, Wash. plant site.

The primary objective, according to T. J. Headley, company chemist in charge of the project, was to determine "whether or not young salmon can actually live in the dense floc formation which occurs in the settling basins and to determine if they can tolerate heavy accumulations of sludge in the bottom of the basin."

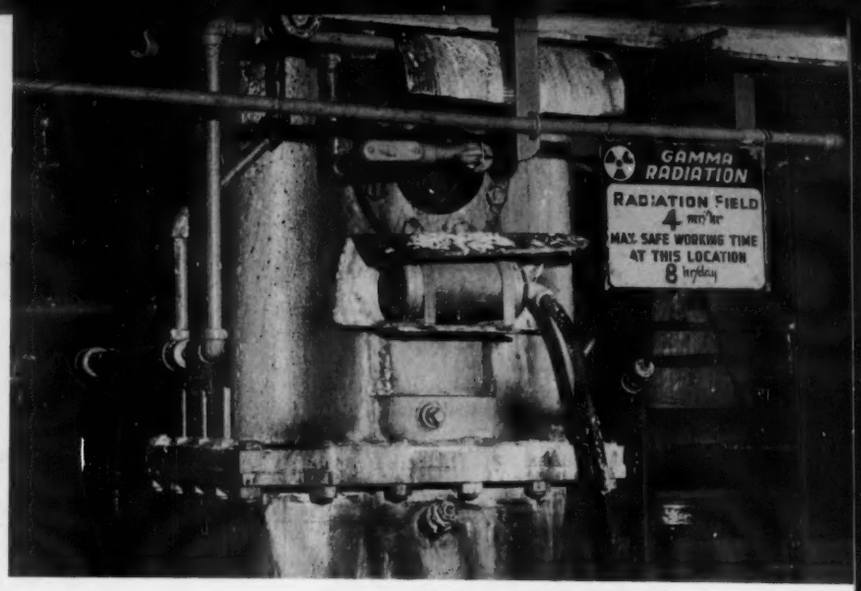
Two plant units were used—one complete with chemical feeders, primary mixing chambers, coagulating cells and settling basin; the other, a stainless control tank through which untreated river water circulated.

Following several days operation using 1.25-1.5 grains of filter alum per gallon, plus commercial coagulant aids to deliberately produce dense floc formation, some 2 in. of sludge accumulated in the settling basin bottom. Forty sock-eye salmon fingerlings of migratory size were then obtained. Twelve were placed in the control tank, the rest in the test unit. In the latter, according to Mr. Headley, "the fish promptly went to the bottom of the basin and actually hid themselves in the sludge layer. When unmolested they ranged all over the basin but seemed to prefer the bottom. After 48 hrs. of this environment, neither the fish in the control tank or the settling basin showed any signs of distress whatsoever. In both cases the fish were highly active and alert . . . and none showed signs of stress."

When contacted by PULP & PAPER after 12 days of continuous tests, Mr. Headley stated "the fish are still as healthy and active as at the start. In fact, they seem to thrive."

This prolonged testing, based on the operation of conventional settling basin using filter alum as the basic coagulating agent, objectively indicates the following: Periodical disposal of settled sludge from conventional settling basins, or the disposal of backwash water from filters used in conjunction with them, could not have adverse effect on fish life in the receiving body of water.

NUCLEAR DEVICES are proving more and more useful to industry in the H-bomb era for positive quality control . . .



I.P.'s Al Moore tells how:

Radioisotopes Come of Age

By ALVIN E. MOORE
Project Engineer
International Paper Co.,
Pine Bluff, Ark.

Alvin E. Moore began studying electronics at Louisiana State University in 1942, interrupted his education to serve as an electronics technician in the Navy during World War II, then returned and received his b.s. degree in electrical engineering in 1950. Previously employed by RCA, he joined International Paper Co.'s Southern Kraft Division in 1952 as an electrical design engineer at Springhill, La. Soon after work began on I.P.'s new mill at Pine Bluff, he went there as project engineer in the construction design department. At present, his duties as project engineer for International Paper take him all over the South. This report, especially edited for PULP & PAPER, was originally presented at Georgia Tech in Atlanta, Ga., as part of special symposium on industrial uses of radioisotopes.

● Development of measuring techniques has made practical the application of radioisotopes in several areas of measurement in pulp and paper mills. A device which can measure and ultimately control basis weight without touching the sheet and do this while the machine is running is a revolutionary concept in paper making.

Being able to control the level of high consistency pulp where conventional methods just won't work, has made possible a successful automatically controlled bleaching system. Controlling concentration of chemicals by measuring density is old stuff to the pulp and paper mills, but the measurement involved sample lines, hydrometer readings, purge lines and other sources of trouble. Again the ability to measure the density without touching the fluid stream is somewhat of a revolutionary concept.

How Isotopes Are Used

The most important uses of radioisotopes in this process are:

1. The measurement of the basis weight of a sheet of paper.
2. The measurement of the height or level of material inside tanks and storage chests.
3. Measurement of the specific gravity of certain chemical flows.

Measurement of basis weight is by far the most popular of these applications of radioisotopes in the paper industry. Basis weight, the weight of paper in pounds per thousand square feet, is used to classify the sheet into various grades. Thus a 97 lb. paper is a sheet of such composition that a thousand square feet weighs 97 lb.

The instrument that measures basis weight is called a beta gauge because it uses radioactive sources that emit high speed electrons called beta particles. A measuring head containing this source is placed on one side of the sheet and a similar head containing a radiation detector is placed on the other side directly opposite.

As the sheet passes between source and detector, the intensity of radiation is measured and displaced on a recording strip chart and a repeating indicating meter. This chart or indicator is usually calibrated to show the weight variation of the sheet above and below the desired basis weight.

It is important to note that this measurement is continuously and instantly displayed. An operator watching this chart or meter can tell at a glance whether or not the sheet is the proper weight. Should the sheet weight begin to exceed the limits above and below basis weight he can immediately make the necessary adjustments to bring it back to the correct weight.

Under the old method of determining basis weight, practiced for years by the papermaker, the dry end operator tears a piece off the edge of the sheet as it is being wound into large rolls. If he is quick and lucky he can get a piece off the edge without breaking the sheet. He then trims the piece into a foot square sheet and weighs it on a balance scale which is calibrated in pounds per thousand square feet.

Immediately we can see some objections to this method of measurement. First of all, a fault is introduced into the roll which must be cut out and spliced; second, since this is not a continuous method it is hard to tell how long the sheet has been running at the weight of the sample piece; and third the piece of paper he is using as a sample is hardly representative of what is in the roll.

We are using a single foot of production as representative of a piece of paper that is actually five or six miles long, a piece of paper that weighs a few ounces as representative of a piece that weighs as much as eight tons and a sample with an area of one

square foot as representative of a piece with a total effective area of four or five acres. By just making the process continuous a great step has been made controlling sheet uniformity.

How Basis Weight Varies

There are two directions in which weight can vary. One is the variation along the sheet called the down machine variation and the other is across the sheet called the profile variation. Formerly, the papermaker tore a strip off the full width of the roll and weighed the standard weigh sheets from the strip. The weight of these pieces indicated the variation across the sheet where the strip was torn out and everybody hoped the variation throughout the roll was the same.

Now, by placing the source and detector on a traverse mechanism, a continuous or intermittent scan across the sheet can be made. If the operator desires, he can set the head at any point on the profile to watch particular variations. Thus the two variations the papermaker must know about are continuously displayed so he can see how to control the machine.

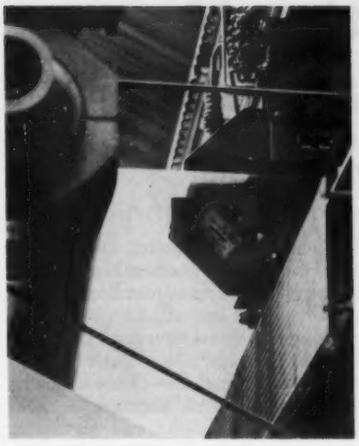
More uniform weight paper has been produced as a result of the operation of the beta gauge. As a result, losses due to off-grade production have been minimized. We have also found that it is much easier to change grades on the run because the machine tender has something there that tells him what is happening when he makes an adjustment. The sheet is more level as a result of being able to scan the profile variations. Machine faults actually have been discovered which would have never been seen using the old method of measurement.

Another Application

The second application of radioisotopes in the process is the measurement of level inside tanks or tile chests. In the case of liquids, this is relatively easy by conventional methods since the pressure caused by the height of the liquid is easily measured and converted to units of linear measurement. However, materials such as dry starch, chips, and high density pulp do not lend themselves to such methods because of their granular nature.

By mounting a radioactive source on one side of the vessel and a series of detectors on the opposite side, the level of material inside will be detected and recorded or indicated as desired. By overlapping detectors and placing them vertically along the side of the tank, the indication will be continuous measurement of level of material inside the vessel.

A particular application of this sort



SCANNING SHEET in Southern paper mill, Beta Ray gauge is used to transmit basis weight data.

of thing occurs in one of our Southern mills. High density stock is relatively dry and cannot be pumped by conventional pumps. This high density stock is fed into the bottom of a bleaching tower by an ingenious feeder arrangement: A rotary feeder which feeds stock into an enlarged section of the pipe that transports it to the bottom of the tower. The stock feeder seals the entrance to the enlarged section as it rotates and drops stock into it.

As the level of stock in this section builds up, it is sensed by an instrument using a radioisotope and detector in a level of measuring arrangement. This level signal is translated into a control signal which actuates a valve that injects compressed air into the top of the enlarged section. This compressed air forces the stock down through the pipe into the bottom of the tower.

As the level falls the controller actuates a valve to reduce the pressure allowing the stock to build back to the point where the air pressure control valve will let in more air and push more stock down the pipe and into the tower. By setting the control to a very narrow range, such as ten inches, the flow of stock to the tower can be held fairly constant. The benefits from this control: more uniform bleaching; more constant production rate.

The third important use of radioisotopes is the measurement and control of specific gravity. A particular application of this is the control of specific gravity or Baumé of weak black liquor before entering evaporators. Actually, we are controlling the concentration of the liquor that is washed from the pulp by using the specific gravity or degrees Baumé as an indication of concentration.

As the black liquor leaves the pump going into the evaporators, it passes through a section of pipe which has a radioactive source on one side and a radiation detector on the other. Since the amount of radiation absorbed by a material depends on its density, the varying intensity of radiation coming through the pipe can be translated into units of specific gravity, degrees Baumé, or whatever scale is in use.

As the material inside the pipe becomes heavier the indicator or recorder indicates this change in Baumé units or gravity units. This signal is then used to activate a controller which works a control valve in a strong liquor line. This adds strong liquor to the pump suction and raises the Baumé reading if the instrument shows that the specific gravity is getting low. By feeding a constant concentration of liquor, the evaporators operate under a more constant load.

The result is a more constant stream demand than was previously experienced without this control. The radioactive isotope practically eliminates hand testing of the liquor with a hydrometer and serves as a continuous monitor on the specific gravity of the flowing fluid. Since there is no restriction in the pipe there is no chance of plugging of any sample lines that may be necessary due to undissolved solids in the fluids. Nor is there any use for sample lines which require pipes, valves, and fittings.

Our experience with radioisotopes has shown us that we are able to do a job which we were not able to do otherwise and do it accurately and continuously.

STARR FEEDER, described by Moore, is shown here in operation at I. P.'s bleach plant at Pine Bluff, Ark. It is used to move high density stock into towers.

Attracting Better Men

. . . to this industry is aim of Pulp and Paper Foundation of University of Maine

• "Continued and increased pre-eminence of our industry hinges upon our getting good men interested in it," says William H. Chisholm, trustee of the University of Maine Pulp and Paper Foundation and president of Oxford Paper Co. That the industry is getting good men is attested by Professor Lyle C. Jenness who remarks, "The reports we are getting on our boys are all good. They're all excellent men."

The Foundation was started in 1950 to get more and better men interested in the industry. "Before that," says Prof. Jenness, "it was practically unheard of that an m.e. grad went into pulp and paper. We now have some 800 graduates in the paper industry; 80 of them are graduates of the fifth year Foundation course. Instead of getting 8 to 10 boys a term interested in the industry, we now get 25."

Each year in May, the University of Maine holds Open House for alumni and for members of the Foundation. There is a high proportion of top level management attendance and participation in the talks. The Foundation is not regional. "Membership in the Foundation," explains Mr. Chisholm, "is actually an investment not only in the future of the industry, but in each company's future. A majority of the graduates (better than 85%) go to member companies."

Give and Take Session

Probably the most impressive feature of the Open House is the afternoon session where the graduating class throws a barrage of questions to a battery of top industry men. In these sessions, students are given a rare privilege to interview the industry and conversely, the industry learns from the frank exchange of ideas what the students like and don't like.

Before committing themselves to a lifetime career in paper, the students quite frankly want to learn "what makes it tick."

Industry's Advice

"Take that sheepskin when you get it and put it in the bottom of a trunk and don't look t it for ten years. You gentlemen when you get your diplomas really and truly are commencing. What you learn in school is invaluable, but truthfully, it is only background for what you are going to learn in your jobs. Hardly a week or a day goes by without a new development or refinement of one of our processes."

"Many technical men don't get their thoughts across. We can't stress enough the importance of your knowledge of the English language."

"Clarity of thought and how you express yourself is important. We are not looking for Sheakespeares or writers, but men who can express themselves clearly and in good English."

"The art of writing a simple letter is important."

About Those Interviews

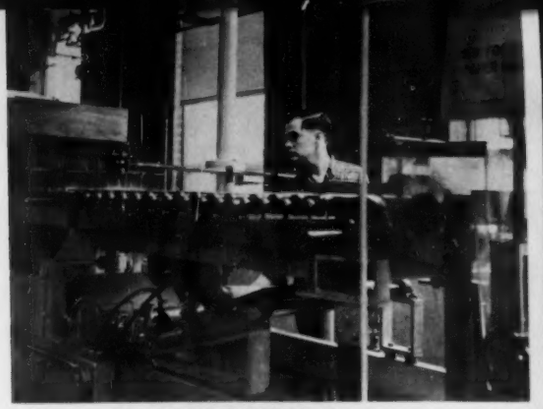
"Grades, personality are important." "So is sincerity of purpose." "When we are employing college men, we want men who are ambitious and hard workers. Appearance means a lot and so does sincerity." "Add to that a pleasing personality, one that is not repellent, then enthusiasm for the field, imagination and realization that he still has a long way to go and a lot to learn."

Students' Views

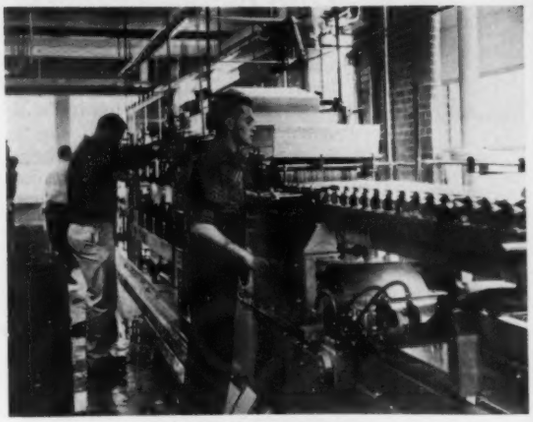
"Summer work has been important in helping us with our courses in pulp and paper." "I have seen the best and I have seen the worst of the industry and it still looks good to me." "When I took my first whiff of sulfur I said that's for me." "In asking what type of summer programs are best, it all depends upon whether you want it to benefit the student's future work or impress the student as to the company's stature."

DANGER: Student Machinetenders at Work

How well do students learn the practical art of papermaking? Obviously nervous before an audience of presidents and other top paper management executives, students started up the new 12-in. experimental paper machine donated by Hugh J. Chisholm, chairman, Oxford Paper Co. They had the usual "Monday-morning start-up troubles," and did make some "hay" before they got the sheet to the reel.



FLAT BOX ADJUSTMENTS are made as stock hits the wire.



NERVOUS MACHINETENDERS eye sheet after it enters dryer section.

SHEET IS ACROSS REEL and samples are passed to onlookers.

"NOT A BAD SHEET," says William H. Chisholm.

PIMA Is Official

Superintendents change name at annual meeting; also talk about PVC, "cold blowing," boxboard and neutral sulfite recovery

• The 40-year old American Pulp and Paper Mill Supts. Assn. has officially changed its name to PIMA—Paper Industry Management Association. Its action adopting a new name, constitution and by-laws came in the opening session of the annual meeting in Houston's Shamrock Hilton Hotel.

A. C. McCorry, St. Regis Paper Co., will be the first president of PIMA, taking over from Howard Wehr, Mead Corp., the retiring president of APPMSA. Working very closely with him under the new set-up will be Joseph A. Paciello, E. I. Du Pont de Nemours & Co., Inc., who becomes chairman of the Industrial Affiliation Committee. James E. Smith, Albany Felt Co., is retiring chairman.

Main aim of PIMA will be to serve as an educational medium to provide an "all-embracing springboard to better methods of papermaking for the industry as a whole." Actually, it is hoped that as a result of more vigorous cooperation between members, the practical papermaker will become more conscious of technical and scientific advances; the technician and engineer more receptive to practical and "trouble shooting" methods.

Tom S. Coldewey, St. Joe Paper Co., is now first V.P. of PIMA and C. Ives Gehring, Sealright-Oswego Sales Corp is second V.P. In the Industrial Affiliates, Richard A. McKay, Holyoke Wire Cloth Co. is first V.P. and Clifford S. Reppe, Hercules Powder Co. is second V. P.

PVC—And a New Plastic

Technically, great interest was shown in a report and demonstration by Kenneth C. Chamberlain, Industrial Plastic Fabricators, Inc., Norwood, Mass., on the advantages and applications of PVC–rigid Polyvinyl chloride. Mr. Chamberlain's 20-minute report was stretched to about an hour by questions from the near-crowded room and by people coming up to look at valves, pipe section, even pumps made of the material

Predicting that within five years, "all piping in housing and hotels" will be made of PVC, he added, "you will not recognize the steel industry 50 years from now." He said most steel companies are already vigorously employed in the manufacture of PVC. His most interesting demonstration: a new type of plastic which can be extruded, is smooth as steel and rings like steel, cold as steel to the touch, and will handle 93% of chemical problems. It will handle up to 1200 psi pressure and hydrochloric acid at 300° F. It will be available in six months.

Back to PVC, Mr. Chamberlain showed the ease with which the material can be "welded" (it is actually glued into one solid piece by a fluid PVC solution which dries in three minutes). It also can be welded just like steel at 475° F. at a speed of 46 in. a minute, without odor or dirt. In the paper industry, where Mr. Chamberlain admitted PVC was slow catching on, they are now making headboxes, savealls, rectifier rolls, white water tanks and valves and fittings of the material.

Mr. Chamberlain claimed that PVC is one-half the weight of aluminum, 1/6 the weight of steel, can handle 78% of all chemical problems (including most bleach plant chemicals), is plentiful, can be machined like any metal, chrome-plated, and is one-third the cost of stainles steel, one-half that of aluminum, twice the cost of carbon steel but cheaper in the long run because of the ease with which it can be installed.

Neither slime nor algae will grow on PVC, said Mr. Chamberlain, and there is a 40% frictional saving over metal, which permits use of one whole size less on pumps. Answering questions about its ability to withstand heat, Mr. Chamberlain pointed out that it needs support every six to seven feet at 125° F; every five to six feet at 140°, full V-support at 150° F. The new material, however, will require no more support than regular steel.

How Gulf States has changed its Kamyr digester

How Gulf States has changed its Kamyr digester was described in a fascinating report by James M. Tucker, Jr., chief engineer of the Gulf States Paper Corp.'s mill at Demopolis, Ala. The Kamyr digester, designed to produce 300 a.d. tons per day is the largest single unit in operation and was described in PULP & PAPER's June 1958 issue. Mr. Tucker pointed out that the digester is now producing 330 tons a day of highest quality bleached pulp and production is expected to increase to 375 tons in August. Its uniformity has permitted the marketing for the first time of five separate grades of pulp at various brightness levels.

The "Cold Blow" Process

Revisions to the digester installation have been few. The most notable change was the installation of Gulf States' "Cold Blow" process, which is the basic Kamyr cold blow system with some innovations of their own. Black liquor at 180° F. or less is introduced into the bottom of the digester with the bottom circulation liquor to reduce fiber temperature results in the retention of natural qualities formerly lost through mechanical damage to the fibers while hot.

Improvement in quality has been "spectacular," said Mr. Tucker. As comparisons clearly show, he said, the use of the "Cold Blow" process has permitted the production of high brightness bleached sulfate pulp from Southern woods equal to that of Canadian bleached sulfate pulp.

The "Cold Blow" process because of lower discharge temperature and consistency permits a direct discharge from the bottom strainer to the blow tank. The sluice, a constant source of trouble, has therefore been eliminated and a remotely controlled valve installed to control the rate of blow. The change in blow conditions has also affected the blow heat and turpentine recovery system.

Some Other Changes

The digester heaters were supplied initially with type 304 stainless steel tubes. Within six months after start-up, tube failures were experienced. An examination of the tubes indicated severe stress corrosion was occurring and replacement tubes of Inconel were purchased. The upper and spare heaters have been completely retubed with Inconel and tubes are kept on hand for retubing the lower heater, said Mr. Tucker.

One of the most complex and persistent problems encountered by Gulf States has been the recovery of blow steam and turpentine, said Engineer Tucker. The blow tank is a relatively small tank of conventional design rather than the special Kamyr design,

which may have added to the problem or delayed the solution since known conditions could not be duplicated.

The initial design was unsuitable for handling the high turpentine content of Southern pine, Mr. Tucker continued. Condensibles were carried through the high pressure feeder and collapsed in the top circulation lines. The resulting "water hammer" caused considerable alarm because of potential danger from a broken line or blown gasket. Of even more importance was the poor performance of the blow tank separator. Fluctuating blow tank and steaming vessel pressure resulted in periodic carryover of stock to the steaming vessels. The digester is extremely sensitive to plugging from pulp and sawdust.

To correct the above deficiencies, the control arrangement at the steaming vessels was extensively revised. The single pressure control in the vent line was replaced with separate venting and steaming vessel temperature controls. A constant flow is now vented which is adjusted up or down as required to minimize make-up steam usage or increase removal of turpentine. Failure to vent sufficiently results in "water hammer" in the top circulation lines as noted above. The steaming vessel temperature is controlled by automatically adding 50 psi make-up steam to maintain a set pressure. Controlling pressure in the system stopped stock carryover.

After the above changes and reanchoring of the top recirculation lines, recovery of both steam and turpentine became routine until conversion of the digester to the "Cold Blow" process. The increased liquor volume of the blow in the "Cold Blow" process combined with the lower nonuniform blow temperature has prevented recovery of blow steam and turpentine. Minor modifications to the separator and blow line have been unsuccessful in eliminating stock carryover.

Additional modification to the digester are scheduled for July of this year. Included in this modification will be the extraction of hot liquor directly from the digester and the subsequent recovery of blow steam and turpentine.

The blow tank can then be operated at atmospheric pressure without the loss of heat and turpentine.

What Boxmakers Want

During a special panel on linerboard, some interesting observations were made by Mr. H. S. Schlotter of Hoerner Boxes, Inc., on what the boxmakers would like in the way of linerboard and corrugating media. Pointing out that five to six years ago putting liquids in corrugated boxes would have been considered impossible, Mr. Schlotter added other "impossible" boxing problems of less than a decade ago which are now realities: Packaging 16-ft. aluminum boats, 50 hp motors and many others.

"You have a two-fold task," he told his audience,"one in producing materials which have the strength to withstand the vigors of industry shipments of all types of commodities; the other to combine strength and beauty to meet the demand of current merchandising."

What boxmakers would like first, he said, is a medium that can be corrugated in a combined operation with a minimum of difficulty: i.e., tough enough to withstand the tugging and pulling involved in threading up the corrugator plus the ability to be conditioned with moisture and heat so that the individual fibers making up the total sheet can be pressed and formed into a smooth uniform flute at high speed.

Color, he said, is another factor which should be uniform between mills. "You and I know . . . wide range in color is normal," he said, "but try and tell a customer this when he has received a certain color for a number of years."

In linerboard, he said, a factor which cost many thousands of dollars in waste is the inability of highly finished or treated sheets to bend or be formed in the boxmaking process. "One company which now produces a stretchable paper has made . . . one of the major achievements in the paper field," he added, because heavy weight boards can be bent or folded even at very low moisture contents without cracking.

Lessening of rejects and scrap is of considerable economic importance, he said.

TOP MEN AT HOUSTON MEETING

Wehr ..... McCorry ..... Coldewey ..... Paciello

Howard Wehr, Mead Corp., turned over the presidency to A. C. McCorry, St. Regis Paper Co. Tom S. Coldeway, St. Joe Paper Co., stepped up to first vice president. Joseph A. Paciello, E. I. du Pont de Nemours, became chairman of Industrial Affiliates.

Neutral Sulfite Recovery

Intense interest was shown in a pulp session which investigated three different neutral sulfite recovery systems. the "Institute system" used by Owens-Illinois mill at Tomahawk, Wis., developed by the Institute of Paper Chemistry and described by John E. Hoeft; the Western Precipitation system used by Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis., and described by David Larsen, and the Mead System used by the Watervliet Paper Co., Watervliet, Mich., described by Louis J. Scheid. (The Watervliet System was described in detail in a special copyrighted article by Mr. Scheid in the March 1959 issue of PULP & PAPER.)

At Tomahawk, prior to 1948, a kraft specialty mill produced about 125 tons of paper a day using conventional methods. In 1948 a semi-chemical pulp mill to cook northern hardwoods or corrugating medium using a neutral sulfite mixture of sodium sulfite and sodium carbonate was built. In 1953, National Container (now Owens-Illinois) based on success of a pilot plant using the Institute recovery system, built a recovery plant based upon the Institute's idea of direct sulfitation and National Container's liquor burning experience.

At Tomahawk, they believe that the handling of the green liquor is to a large degree responsible for the success of the entire recovery operation because the size of the green liquor storage tank gives a uniform mixture of green liquor with which to work; the operation of the continuous decantation system on the green liquor gives a very clean green liquor which eliminates plugging problems in the sulfiting process; countercurrent sludge washing system has enabled them to remove the dregs which not only keeps the sulfiting tower from plug-

ging up, but helps reduce evaporator scaling, and by using the effluent from this washing system in the dissolving tank to dissolve the smelt, it has been possible to hold sodium losses from this source to within about a quarter of a pound per ton of pulp.

According to Mr. Hoeft there are still three major problems in the operation of this recovery system.

1. Corrosion, one of their continuing problems. This is being overcome as it arises by changes in the materials of construction. Said Mr. Hoeft: "There is no set answer to how to stop corrosion."

2. Scale formation inside pipes, in evaporator tubes and on washer wires. An analysis of these various scales show them to be principally calcium compounds, with the calcium coming from the wood, bark, makeup chemicals and makeup water. They have been able to eliminate the calcium from the makeup water by the use of evaporator condensate for makeup water in the dregs washing system instead of water.

3. Sulfur loss, inherent in this particular type of recovery system. Owens-Illinois believes that the simplicity of operation this recovery system offers justifies this loss.

The experimental plant at Consolidated Power and Paper Co. has resulted in careful appraisal of Western Precipitation's system. According to Mr. Larsen, even though initial costs of a new plant have resulted in operational costs exceeding value of chemicals recovered, it is expected that the plant will soon be on a break-even or better basis.

Some of their problems:

1. Foam spilling from tower, eliminated by installing a rotating steam foam heater.

2. Plugging of tubes in first effect evaporator, improved by installing a larger heating element on the forced circulation evaporator, lowering solids outlet concentration from 55% to 40-45%.

3. Smelt dissolving tank-blades on agitators broke off apparently from operating with too low a level in the smelt tank.

4. Scrubbing tower operates very well but the wooden slats must be kept wet to keep from catching fire. An emergency shower set to go off at 170° F. solved this problem.

Although designed to recover 50% liquor, this plant is now collecting 80% from 100 tons.

Camera Trouble . . .

It hurts us—even more than our readers—to have to report that we had camera trouble at Houston. And no pictures!

Gallay: Renaissance for Sulfite

Golden Gate TAPPI group hears Canadian researcher speak on development of strength in paper, at True memorial lecture

Attainment of strength in paper through various stages of manufacture was developed as a unified concept at a recent meeting of TAPPI's Golden Gate district in Berkeley, Calif. The speaker was Dr. Wilfred Gallay, director of research for E. B. Eddy Co., Hull, Que., who delivered the first Robert M. True Memorial Lecture.

In relation to strength, the speaker declared, the resilience and toughness of the fibers and the fractional resilience provided by inter-weaving are of great importance. This is in addition to the strength of the fibers themselves and the inter-fiber bonding.

Dr. Gallay believes that sulfite pulping is on the verge of a renaissance "through operations at intermediate pH ranges."

In the drying of pulp, he continued, "the very intimate relationship between cellulose and residual small quantities of water leads to a considerable destruction of cellulose in thorough drying." Dr. Gallay discussed his own research in the mechanism of wet web strength and described in general the mechanisms contributing to increasing strength throughout the course of papermaking. He related flocculation to inter-fiber adhesion, as well as to mechanical entaglement, and termed this a forerunner of bonding.

Emphasizing the damage done by present beating and refining methods, Dr. Gallay discussed the probable mechanisms of beating.

1959-60 Officers Elected

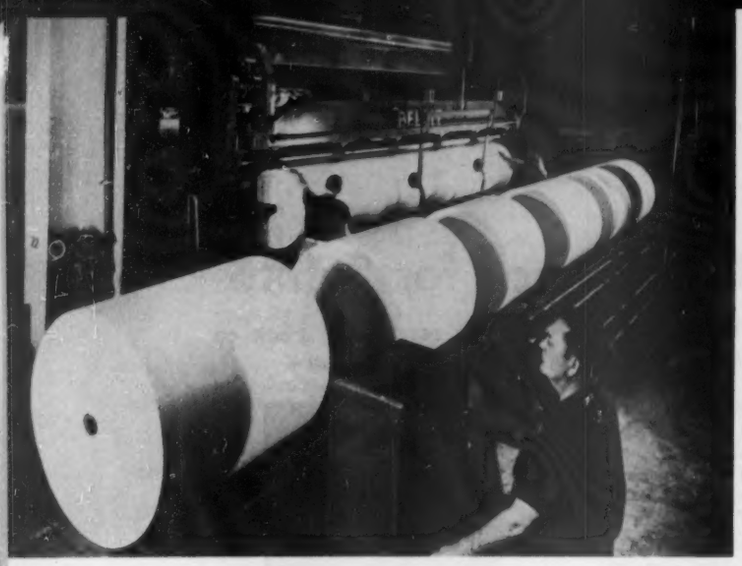
Presiding at the meeting was Chairman Wayne Keufner of Flintkote Co.

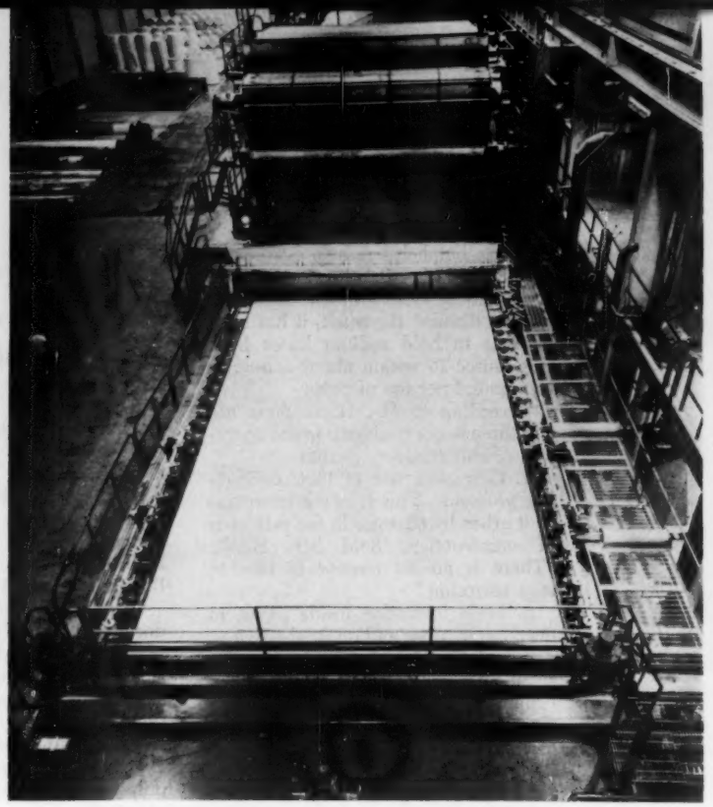
DR. WILFRED GALLAY: Sulfite pulping is on verge of renaissance.

He explained the formation of the True lecture series. The late Mr. True was formerly West Coast mgr. for General Dyestuff Co. and was the principal figure in establishing TAPPI's Golden Gate district. He died before the first meeting was held. Paying tribute to Mr. True at the meeting was Walter R. Brandt, present West Coast mgr. for General Dyestuff and recording secy. of Golden Gate TAPPI. Among the honored guests was Mrs. Robert M. True.

1959-60 officers elected at the session were. Chairman—John Hartsock, International Paper Co.; vice chairman—H. W. Theller, Western Waxide Paper div., Crown Zellerbach Corp.; secy-treas—H. A. Harvey, Penick & Ford Ltd. Inc.; and recording secy.—Walter R. Brandt, General Dyestuff Co. Members of the executive committee include: D. F. Church, Crown Zellerbach Corp.; L. G. Maclise, Dow Chemical Co.; Hy Rammer, Fibreboard Paper Products Corp.; and B. C. Kendall, Crown Zellerbach.

NEW OFFICERS AND EXECUTIVE COMMITTEEMEN attending the recent meeting of Golden Gate TAPPI included (from left): D. F. Church, Crown Zellerbach Corp.; Hy Rammer, Fibreboard Paper Products Corp.; H. W. Theller, Western Waxide Paper div., Crown Zellerbach; L. G. Maclise, Dow Chemical Co.; Wayne Keufner, Flintkote Co. (retiring chairman), and Walter R. Brandt, General Dyestuff Co.





Plenty . . . from Twenty

Champion unveils world's largest production machine for making fine papers—No. 20—at North Carolina division

Canton, N.C.

● Champion Paper & Fibre's North Carolina div. has put on the line its fifth papermaking machine, the seventeenth Fourdrinier machine among the company's three mills.

It is the fastest and largest maker of fine papers in the world.

The machine ends a 10-year expansion program, for its startup last February climaxed a growth plan which began in 1950. The machine itself began taking form in the minds of Champion engineers in 1951, went on the drawing board in 1953 and started taking shape in the mill in 1957, a year after Champion's board of directors blew the whistle to go ahead with the program.

During this same period, Champion's woodyard and pulping facilities were also expanded gradually to meet the demands of its new Fourdrinier—Number Twenty.

Champion boasts that it is the most modern, the speediest, the most versatile machine of its kind in the world. It is balanced to turn out writing and other fine papers at a speed of 2000 fpm on some grades. On 16 lb. tablet it can produce 1600 fpm, which Champion believes is about 400 fpm faster than any other machine now operating.

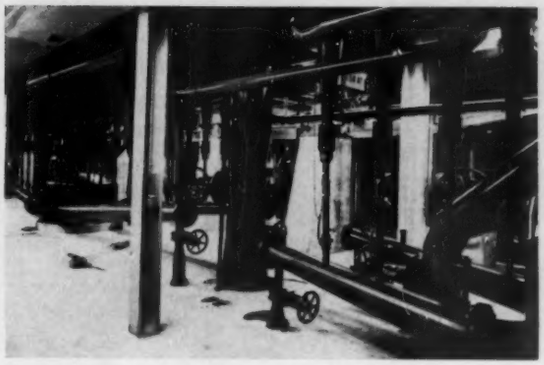
A Giant Grows Bigger

Capacity of Number 20—a gigantic Beloit machine which trims its 246 in. Fourdrinier width out at 230 inches—is between 90,000 and 100,000 tons a year. This will boost the output of this Carolina mill to 750 tons of paper and 225 tons of paperboard a day. In addition it makes 630 tons of pine pulp, 300 tons of hardwood pulp, 50 tons of semi-chem. Of its nearly 1000-tons-a-day pulp capacity, only 125 tons a day is shipped out—this to its sister mill in Hamilton, Ohio, one of two others (the third, at Pasadena, Texas, makes much of the Time and Life magazine paper).

If figures are your cup of tea, it might also be worth noting that this one mill consumes 1800 cords of pulpwood a day, 40 million gals. of water, employs 3200 people (more than 200 of them as a result of No. 20's appearance on the line), to whom it pays its annual $18 million payroll. The company spends $9.5 million a year on freight at Carolina alone, another $11 million to satisfy its tremendous wood appetite.

Among other things, this mill, which was founded by Ohio printing company owner Peter Thompson in 1906, was the first in the world to make white pulp from chestnut wood; first to produce high quality woodpulp from Southern pine trees; first to make bleached hardwood pulp from the sulfate process. It produced bleached pulp from Southern pine (in the form of pine soda pulp) up to 1919, has been using the sulfate process since then. Chlorination for bleaching came into use in 1935.

FLANKED BY TOP V.P.'s, Champion's Pres. Reuben B. Robertson answers questions at press conference. From left, Dwight J. Thompson, Karl Bendetsen, Mr. Robertson, A. M. (Buck) Fairbrother, Herbert W. Suter, Jr.



FINE PAPER REQUIRES THIS BATTERY of washers, in all, 36 Bauer Centri-Cleaners in three stages.

PULP FIBER IS REFINED HERE in stock prep room by 13 Emerson 4-K ticker jordans.

Pulp additions, stock prep are extensive

As part of the expansion plan climaxed by the startup of No. 20, Champion has, since 1950, been enlarging other areas of the mill. Recovery facilities and new evaporators were added. At present, two lime kilns are in operation, one 8 by 317 ft., the other 10½ by 312 ft., with a total capacity of 300 tons of reburned lime. Power was boosted to a point where Champion now only purchases 20% of its total power requirements. Four boilers develop 1.2 million lbs. of steam per hour at 400 lbs. pressure and 700° F. Its steam turbines generate 50,000 kw of electricity an hour.

Cooking facilities were increased during the nine-year period of expansion and the bleach plant was enlarged to a point where Champion now believes it to be the biggest in the world.

Hardwood Utilization

The company also developed its hardwood utilization and is now using a "higher percentage of hardwood than we ever dreamed we would." This hardwood production is being used to a great degree on the new machine, which is currently using an average of about 50% hardwood pulp, has used as high as 70% on some experimental runs.

Stock is received from the pulp mill over three Champion-designed and manufactured 6 by 12 ft. thickeners with 200 tons day capacity set in tile-lined Stebbins chests. Stock goes at 7% consistency through a metering system designed by Champion into one of three 20-ft. diameter Black-Clawson Hydrapulpers, where it is mixed with supplemental furnishes before delivery to storage chests ahead of the machine.

Of the four Stebbins chests, the 16-ton pine chest is the largest. Hardwood, machine and broke chests are all 12 tons. A safety factor has also been provided with additional storage space for wet lap ahead of the Hydrapulpers but it has not been used to date. All stock is metered into storage via semi-automatic control system.

How pulp is refined, washed

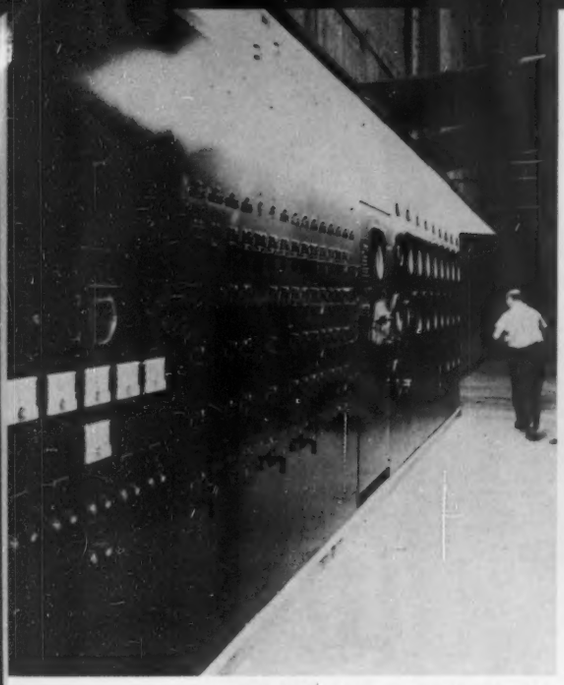
Stock from the machine chest is given final refining through 10 Emerson 4-K jordans with 400 hp motors, after which it enters a basis weight head tank which maintains a constant head as stock is pumped into the cleaning system.

Because of the rigid requirements for white paper, washing is elaborate. The primary system consists of 29 Bauer Centri-Cleaners, 4 by 3 in., rated at 650 gpm. The cleaners are banked in four sets of five cleaners each, followed by two sets of three, a set of two and one final cleaner. There are five secondary 4 by 3 in. cleaners from which rejects are pumped into a third set of 3 x 3 in. 500 gpm tertiary cleaners. Rejects from the tertiary line are returned to the pulp mill.

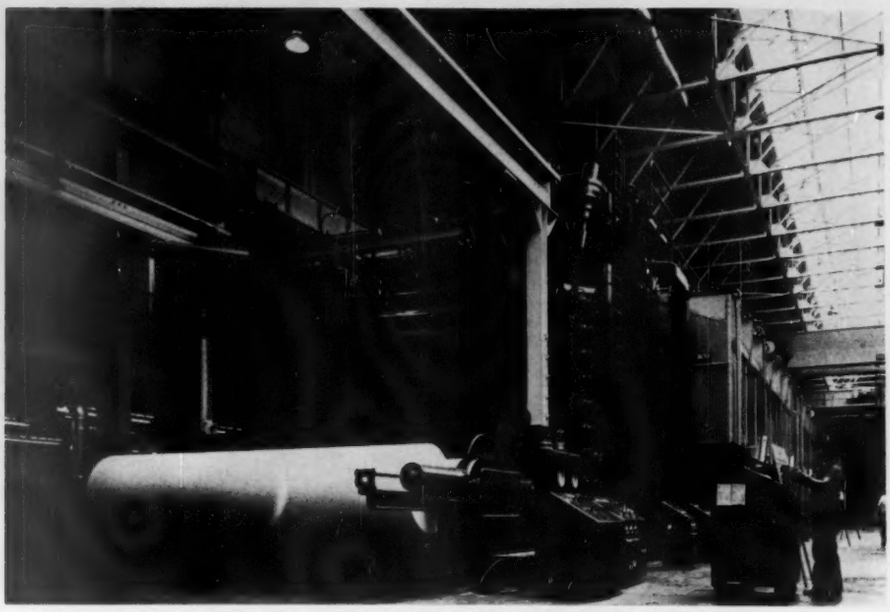
Accepted stock goes through six No. 24 P Black-Clawson Shartle Selectifier screens and then is pumped into the machine chest. Piping throughout is 316 extra low carbon stainless fabricated by W. L. Rives Co., Jacksonville, Fla. Foxboro automatic flowmeters are used to monitor the flow throughout the stock prep and machine rooms. Three Emerson tickler jordans give stock final refining before it goes to the machine.

INSURANCE AGAINST KNOTS is provided by these six Black-Clawson Selectifier screens before headbox.

. . . more on Champion's "Twenty"



SWEEPING INSTRUMENTATION is one feature of Champion's new machine.



SPEEDING THROUGH 27½-FT. CALENDER STACKS, paper rolls off dry end of giant 246 in. Beloit machine. Machine features air-balanced totally enclosed Ross hood, Foxboro instrumentation, four dryer sections.

Here are the facts on Twenty

Headbox of the machine is the latest air pressure design with a multiple pipe dual impingement distributor. It contains five variable speed rectifiers and an adjustable straight-lip slice. Headbox level is automatically controlled by recirculation of stock to the primary Centri-Cleaner pump, with pressure coming from the Nash I-3 compressor. Headbox consistency ranges from .5 to .8% with freeness running from 320 to 325 on 16 lb. bond, to 375 on 20 lb. bond, mimeo and tablet.

The machine has a 246-in. wire which trims to 230 in. The removable Fourdrinier has a 36-in. air motor lowering breast roll; twenty-seven 13-in. table rolls, seven stainless steel suction boxes; 30-in. dandy; seven wire return rolls; two position tension rolls and complete automatic wire tension control. The 42-in. couch has both high and low vacuum suction boxes.

Water from the Fourdrinier saveall pans returns to a well type wire pit from which it is recirculated by either the primary Centri-Cleaner pump or the fan pump. A skimming weir, or baffle, prevents foam from collecting in the pit, while saveall downspouts which enter below the level of the wire pit and are automatically controlled to hold the level of the saveall pans prevent air from rushing into it.

The machine's 27-ft. press section is equipped with a 30-in. bronze shell pickup roll. The first and second press suction rolls are 44 in. with 268-in. faces and are driven by a 47-in. Microrok center roll equipped with Lodding doctor. The inclined, three-roll section has conventional lubricating showers on the first three presses.

Air is Automatically Controlled

Number 20's 66 paper dryers, six Feeneys and eight return rolls are all 5 ft. diam., designed for 125 lbs. steam pressure and totally enclosed in a Ross hood with balanced air system that is automatically controlled to dispense humidity into the atmosphere as it rises. A Midwest Fulton dryer drainage system is employed with "Champion improvizations."

There are four sections of dryers, with the size press separating the third and fourth sections. The size press is a vertical type with a 35-in. Microrok bottom roll and 36-in. rubber-covered top roll. Both are crowned. Thus far straight starch is being used in the size. The press is equipped with automatic cutoff controls which operate in the event of a paper break, shooting straight water through the press until the situation is remedied.

No. 20 has two open-side calender stacks, the first containing seven rolls; the second, nine. Both have 36-in. king rolls and nip-relieving systems, electrically operated roll lifts, oscillating doctors and air cooling systems.

The heavy duty reel has a full width braking system and heavy duty constant speed drum and will take an 88-in. roll. Consistently, a heavy duty double drum winder is also provided with designed speed up to 6000 fpm. Each drum has its own 250 hp direct current motor and the entire unit is equipped with oscillating unwind stand, individually driven sheet slitters and automatic shaft removal. Roll wrapping and weighing station is located directly behind the rewinder.

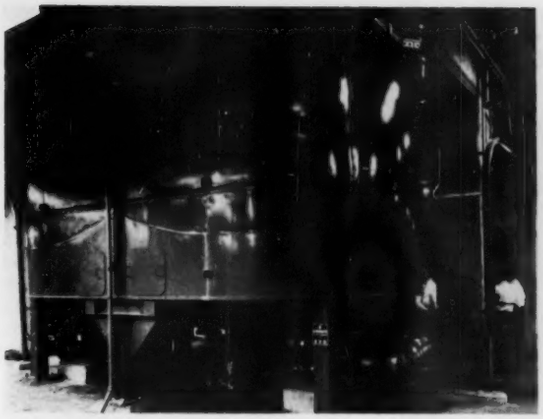
Differential Drive Runs Machine

A 2400 hp multi-vane, multistage, non-condensing 400 psi General Electric steam turbine with 10-to-1 speed range, drives the machine's differential mechanical line shaft and connects with the wire turn roll, first and third presses, smoothing press, four dryer sections, size press, calenders and reel.

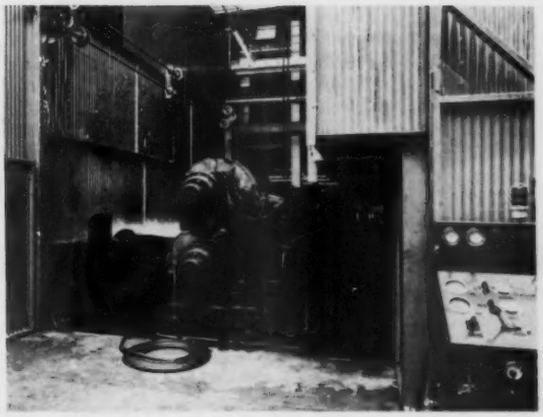
In-line generators provide the power for the couch return roll drive, second press wringer rolls, pickup roll, felt return roll, top size press roll and various tension rolls. Each differential drive has Link-Belt PIV units for speed control with air operated clutch connections between the differential and transfer gear case on the in-drive.

Startup Carefully Planned

Champion's newest addition to its long line of papermaking machines was almost entirely designed by its own staff. In July 1956, work for the project began under direction of chief engineer B. J. Sledge. In order to incorporate the latest advances on this machine, a special team which included Mr. Sledge, Jim Hall, John Bull, C. A. Stone, Carl Welte and J. B. Wilkinson visited paper plants from coast to coast to study other machines in operation.

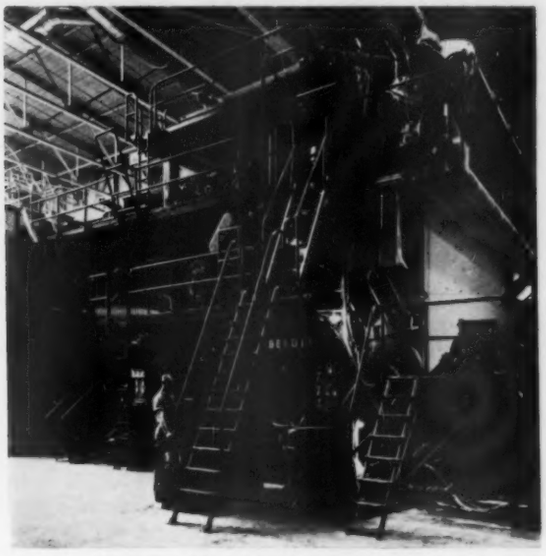


ONE OF FOUR BLACK-CLAWSON HYDRAPULPERS, this one catches dry end broke. Others are used to mix broke, supplemental furnishes ahead of machine.



VERTICAL TYPE SIZE PRESS has automatic cut-off switch which substitutes plain water for starch in event of a paper break, starts back up automatically.

STOCK POURS INTO HEADBOX through multiple pipe dual impingement system. Box contains five variable speed rectifier rolls, adjustable straight-lip slice.

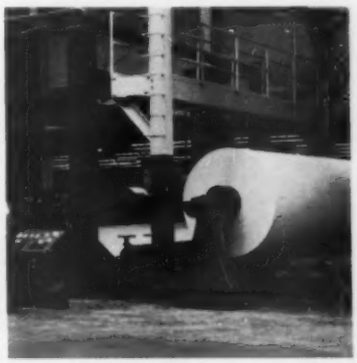


ROARING INTO SUCTION PRESS, sheet passes through three-roll inclined press with conventional lubricating shower, into third suction and smoothing presses.

Among other things, the company had, as early as April 1958, begun studies on the development of a training program for the men who would operate No. 20, since lack of a sister machine made "on the job" training impossible. By December, shift and beater room supervisors were studying prints and familiarizing themselves with the equipment. Machine supervisors, meanwhile, went to Champion's Texas division in Pasadena to observe wire changes and press section operations on No. 22 machine, which bears some resemblance to Canton's new machine.

Chief designer Sledge wrote an "Engineering, Equipment and Design Manual" with drawings for crew plus manuals on operating procedures and a job breakdown. Color slides were used to illustrate facets of the machine during a 10-hour course given from Dec. 19 to Feb. 1 to all machine and stock prep personnel. Two representatives from Beloit Iron Works also conducted a course and in late January a final general class was conducted for everyone who was to work on Twenty.

No. 20 machine went on the line at 1:04 a.m. February 17, making 20 lb. white Ariel Bond at 1000 fpm. Within a week it was producing 193 tons a day of No. One salable paper. Less than a month later production reached 250 tons. Champion's long-range plan was obviously a success.



BELOIT DOUBLE DRUM WINDER has speeds up to 6000 fpm, individual sheet slitters. Weighing and wrapping station is directly behind it. 250 hp d.c. motors drive each drum.

Reports from Gearhart

Joint Pacific Section TAPPI-Superintendents meeting at Oregon resort discusses West Coast industry problems

PANELISTS (from left): Chairman **Norval Magnusson,** Puget Sound Pulp; **D. C. Smith,** Weyerhaeuser Timber; **L. C. Binford,** Izaak Walton League director; **Dwayne J. Clark,** Simpson Paper; **James C. Cooper,** West Tacoma Newsprint; **Richard Peterson,** Rayonier marine laboratory; **Vinton W. Bacon,** exec. secy. Northwest Pulp & Paper Assn., **S. K. Pratt,** St. Regis Tacoma; **Norman S. Lea,** Scott Paper Everett.

Multiple Water Use

• Rational management of water quality—both fresh and salt—that aims at high but balanced usage can be accomplished according to V. W. Bacon, exec. secy., Northwest Pulp & Paper Assn. This calls for three steps:

1. Determine and enunciate by geographical areas the present and future beneficial water uses which are to be preserved and protected.

2. Determine and adopt water criteria which will protect these uses while allowing maximum use and re-use of the waters.

3. Apply monitoring programs to maintain the prescribed water quality criteria.

Although all water uses are not compatible from a quality standpoint, use participation is increasing extensively. Beneficial uses range from the domestic water supply to recreation, power, irrigation, propagation of different sorts of aquatic life, navigation, waste dilution and dispersion, etc.

He points out that one of the first points to be clarified in considering multiple water usage is to determine what "pollution" is. "This is entirely possible, but not easy. Unfortunately, many people who have not studied the subject scientifically have the impression that putting anything in the way of a waste material into public water is pollution. They ignore, or are unaware of, the fact that while some wastes are toxic, many are non-toxic. They ignore, or are unaware of, the very real capacity of water to receive and assimilate waste and return to its original condition without suffering damage in this very natural process. Lack of understanding on this question can be one of the most serious impediments to development of a sound water quality management program."

The setting of standards is a highly technical task and, according to Mr. Bacon, certainly not one which can equitably be achieved through "bartering" and "horsetrading." If not properly done, dire consequences can result to a state's over-all economy.

Improving Air-Water Conditions

Discussing the accomplishments of mills in water quality control, S. Kepple Pratt, supt of mfg., St. Regis Paper Co., Tacoma, Wash., highlighted some of the industry's continuous research and development programs for recovering and using once wasted materials.

But, he also pointed out that in spite of recent large expenditures—$2,982,967 spent by Pacific Northwest mills from 1947 through 1958 on waste research—the mills still must dis-

PACIFIC TAPPI HEAD MEN (l to r): retiring chairman **Paul S. Billington,** Weyerhaeuser pulp research dept; secy-treas. **Robert H. Smythe,** Ray Smythe Co.; vice chairman **P. T. Dickie,** CZ West Linn tech. control supervisor; chairman **Norval Magnusson,** Puget Sound lignin prods. dept. supervisor.

CERTIFICATE FOR ACHIEVEMENTS as chairman Pacific TAPPI awarded **Paul S. Billington** by **Jack Winchester** of national TAPPI. Seated (l) luncheon speaker **Howard P. Mold,** mgr. sls. personnel Minneapolis-Honeywell, (r) toastmaster **F. R. Hamilton,** chairman Pacific Supts. and dir. research development, Simpson Paper Co.

charge some materials in the various bodies of receiving waters. According to Mr. Pratt, "every mill in the Northwest is attacking the problem with an intensity in direct relation to local conditions, and in most cases, during the last few years research has been greatly intensified."

Much progress has been made. When equipment should be replaced or a process modernized, the decision of mill managers is increasingly influenced by the pollution abatement advantages of the new machinery.

Control programs instituted by mills on Oregon's Willamette River showed a 36% decrease in the amont of organic waste discharged last year. These improvements, the result of new equipment, better housekeeping and increased impoundment during low-flow periods of the river, materially increased the ability of the river water to sustain aquatic life and meet requirements for other uses.

The significance of bio-assays as a factor in determining multiple use standards for water is becoming more widely recognized. By subjecting living organisms to various concentrations of foreign material under controlled conditions, mortality thresholds are determined. This, according to Norman S. Lea, tech. control mgr., West Coast Div. of Scott Paper Co., provides realistic data on which to base workable control programs for achieving maximum beneficial usage.

Extensive bio-assays have determined the effect of various SSL concentrations on specific water plants and animals. The Academy of Natural Sciences, of Philadelphia, conducted bio-assays last year for Northwest Pulp & Paper Assn. to determine toxicity levels on water organisms—including those representing important steps in the food chain. The findings, cited by Mr. Lea, disclose safe biological limits for concentrations of 10% SSL to be 1,096 ppm for silver salmon, 7,320 ppm for shrimp, 1,460 ppm for diatoms.

As to whether spent sulfite liquor is affecting the food chain, "many leading biologists are now suggesting fertilizing properties for diluted SSL," states Mr. Lea.

PANELISTS (from left): **Garnie Cranor,** Oregon Pulp & Paper; **E. H. Look,** Portco Corp.; chairman **Glen D. King,** Crown Z West Linn; **John M. McEwen,** Weyerhaeuser Pulp Div. Everett; **Sumner P. Dennon,** Pacific Coast Paper Mills.

New Slants on Quality

Quality control consists of establishing adequate standards and then keeping the manufactured product as close to specification as possible—neither over nor under these standards. That's how John M. McEwen, tech. dir., Everett Kraft mill of Weyerhaeuser Timber Co., defined "good control programs" at the Pacific Supts. general technical session.

"Standards may be set by past performance, a competitive product, customer requirements, pilot-plant results or higher management decisions. In any event, the standards must be set so we can sell the product and produce it at a profit.

"One way of establishing standards, particularly on a new grade of pulp, is to attempt to duplicate a pulp now being used for the purpose. When such a request is made, it is of considerable value to have a sample of the pulp you are asked to duplicate. It is very difficult to convert another organization's tests and subjective evaluations into your own units and specifications. The numbers that other people report are never the same as your own. If you are able to get a sample large enough for complete physical and chemical testing, you can evaluate it in your own terms. Then the problem usually resolves itself in to one of trying to make a different wood, different type of cooking liquor, and different bleaching process come up with a result that the competitor gets naturally. It is always nice to be in a market first; then some minor characteristic of a pulp may be a great hurdle to a competitor because the customer is used to it and likes it."

According to Dr. McEwen the responsibility for control and inspection should be clearly established and control be effective 24 hours a day and on weekends. There should be an independent system of inspection to make sure that standards are met. He says one solution is to have the regular operators make the tests to control the process and obtain inspectors from a different department who also operate around the clock. Well-written procedures should be provided to show what the specifications are, how they can be met, and it is important to constantly review and supervise the system of control and inspection.

Putting Quality in Converting

Whatever the product, regardless who buys it, the product is expected to be good, according to P. S. Dennon, tech. dir. of Pacific Coast Paper Mills, Bellingham, Wash. Reporting on laboratory relationship to quality control, he pointed out that many benefits were obtained at his mill as result of application of basis weight and caliper control tests to tissue. The objective was to "fill the need of uniformity of bulk for the sake of packaging machinery and for customer acceptance as to uniform size of the package. Then, too, the basis weight itself directly affected accounting standards for paper usage."

This control "wedge" proved to be a step in the right direction. Brightness and color control followed, these also finding ready acceptance.

Two recent developments which resulted in much smoother operation in converting concerned communication and opinionated judgment. A communication bottle neck was solved by instituting a customer complaint system. All possible information pertaining to the problem is now specified on a special form and the complaint routed through the lab to the machinetender and then the pulp mill superintendent or mill manager. Although originally meeting some antagonism, the system has now been accepted.

As to the problem of opinionated judgment, tissue softness is now measured mechanically. For over a year the mill has used a Thwing-Albert Handle-O-Meter for measuring tissue softness.

From the viewpoint of a small converting operation, E. H. Look, vice pres. of Portco Corp., Vancouver, Wash., suggests that "more cost saving

visits" be made on converters by their suppliers to achieve practical production quality.

To him, practical quality control means consistently providing a customer with materials of the quality he needs. "Only by cooperation can it be determined what quality must be built into a product."

Mr. Look reported that his organization, like most small companies, is in the "dilemma" of not being able to afford full-time quality personnel and, at the same time, not able to afford not having somebody solely responsible for quality. As a compromise solution each department supervisor is charged with this responsibility.

PANELISTS (from left): **James Palmer,** CZ Camas; **J. D. Morgan,** Oregon Pulp & Paper; moderator **Donald G. Felthous** and **C. L. Carns,** Weyerhaeuser Pulp Longview; **John Dunkak,** Puget Sound Pulp; **Meder Johnson,** James Brinkley.

How to Improve Technical Sales

By Panel Moderator Donald G. Felthous, plant engineer, Weyerhaeuser Pulp Div., Longview, Wash.

Speaking for industry purchasing personnel J. D. Morgan, pur. agent of Oregon Pulp & Paper Co., Portland, Ore., expressed appreciation for sales representatives who expedite difficult procurements and can be relied upon when out-of-the-ordinary items are needed in a hurry.

According to C. L. Carns, construction engr., Weyerhaeuser Pulp Div. at Longview, technical sales personnel give important construction design assistance by providing preliminary drawings and cost estimates, advising on equipment application, furnishing accurate prices, timely delivery, heeding specifications, and providing lists of accessories, horsepower and other factors.

As an operating supervisor, Jim Palmer, bag plant supt. at Crown Zellerbach Camas Div., wants three things from the technical salesman: Accurate information on his products and their application; immediate assistance on operating problems; cooperation in developing new materials or equipment. Mr. Palmer advocates both technical and practical background for technical sales personnel.

John Dunkak, representing tech. dept. and chem. engineers at Puget Sound Pulp & Paper Co., told the group that technical assistance in process and control problems was sought from technical sales people. Their reliability and integrity is essential.

The Salesmen's Side

Meder Johnson, mgr. of James Brinkley Co.—a former plant engr. turned salesman-manufacturer — revealed the salesmen's side. To enable the technical salesman to do the quality job that's expected of him he needs to (1) get to the right man to obtain authoritative answers (recent survey shows that 60% of sales calls were made to the wrong people); (2) obtain enough information to make intelligent suggestions or quotations; (3) have time to prepare a proper quotation; (4) be allowed sufficient access to operational information to adequately learn of the problems involved. The prospective purchasers should not let the salesman's quotation be known to competitors nor should people be asked to quote who are not in a position to do so and follow through on the project.

Discussion emphasized the mutual advantage of having the salesman directed to the right people so that both his and the mill men's time might be more effectively utilized. Having to sit for hours to first check through purchasing, just because "that's the rule," when technical, engineering or operating people have requested a specific problem, was decried by volunteers of the attending group.

PANELISTS (from left): **J. G. Lewis,** Oregon Pulp & Paper; **Lauren A. Lafond,** CZ Lebanon; **Ducie C. Chads,** Puget Sound Pulp; moderator **Clarence D. Ploppe**r, Inland Empire Paper; **Cliff Mayer,** Publishers' Paper; **Russell Brundage,** Weyerhaeuser Pulp Cosmopolis.

Quality in Sulfite Pulping

By Panel Moderator Clarence D. Ploppe:, pulp mills supt., Inland Empire Paper Co., Millwood, Wash.

Factors affecting quality in the manufacture of sulfite pulp include most of the in-plant facilities and also some which are outside the mill area and over which control is difficult. These influencing factors include all raw-product materials, power—both steam and electric, mechanical equipment, and personnel ranging from in-plant operators clear up through the executive staff.

Specific cases were cited in which quality was improved and costs reduced.

Three Rosenblad heat exchangers were installed in one mill to cool spent sulfite liquor to be used to pad the blowpits. This cool SSL is also used as a spray against the blow target during

digester blows. After the water serves as a coolant in the heat exchangers it is utilized on the bleach plant washers at a savings of around 20,000 lbs. of steam per hour. That much steam had previously been required to bring the washing water up to temperature

With the SSL padding and target liquor spray system in operation, it improved stock uniformity in the blowpit and resulted in better stock drainage and washing. The quality of air in the mill vicinity was improved because the cool target liquor reduced the temperature of blow gases in the vomit stack.

Another mill reduced fiber losses 50% by installing a 5th stage of cleaners.

Chip-bin vibrator performance improved at a reporting mill by changing to an eccentric-motor type mounted on a steel plate located inside the bin; another achieves desired results by using air-operated vibrators.

The sulfite mill men find their problem of obtaining chips complicated by the fact that kraft mills have less stringent chip requirements than are specified for the acid process.

PANELISTS (from left): **H. E. Franson,** CZ St. Helends; **E. B. Wilson,** B. C. Forest Products; **Peter M. Wilkie,** Elk Falls; moderator **A. Hugh Wickett,** Weyerhauser Pulp Longview; **Russell M. Graff,** Longview Fibre; **N. T. Williams,** MacMillan & Bloedel Harmac.

Better Kraft Pulping

By Mod. A. Hugh Wickett, kraft mill supt., Weyerhaeuser Timber Co., Longview Pulp Div.

Tangible improvements cited by panel members indicate various specialty applications by which cost and quality gains may be made in kraft mills in general.

By remodeling the screenroom tailings operation at the Crown Zellerbach St. Helens plant, fiber losses have been reduced by over 98%. In addition to materially increasing fiber recovery the mill is now producing pulp of higher quality as result of eliminating shives.

Logs of 26 in. maximum diam. can be handled in lengths up to 73 ft. at the Harmac mill of MacMillan & Bloedel. Woodroom design embraces transport and processing equipment for moving the logs progressively through the operations to emerge from the slashers, in 8 ft. lengths, onto a belt conveyor taking them directly to the drum barker.

Improvements made in the Elk Falls Co. Ltd. green dregs recovery system have resulted in considerable savings of soda and increased efficiency of the whole liquor and kiln operation. The new system requires less fuel for firing the kiln and results in less ringing of the kiln.

The use of a flocculating agent (Dow's Separan) in the caustic liquor system at Longview Fibre Co. enables this under-size section to operate efficiently. By adding Separan to the liquor system (to white liquor at 3rd causticizer and some to filtrate from Bird centrifuge) at the rate of 0.01 lbs. per daily ton of pulp (air dry) at cost of 2¢ per daily ton, specific advantageous results are achieved. These include better liquor settling, optimum clarity of white liquor, higher pulp quality, reduction of pitch problems.

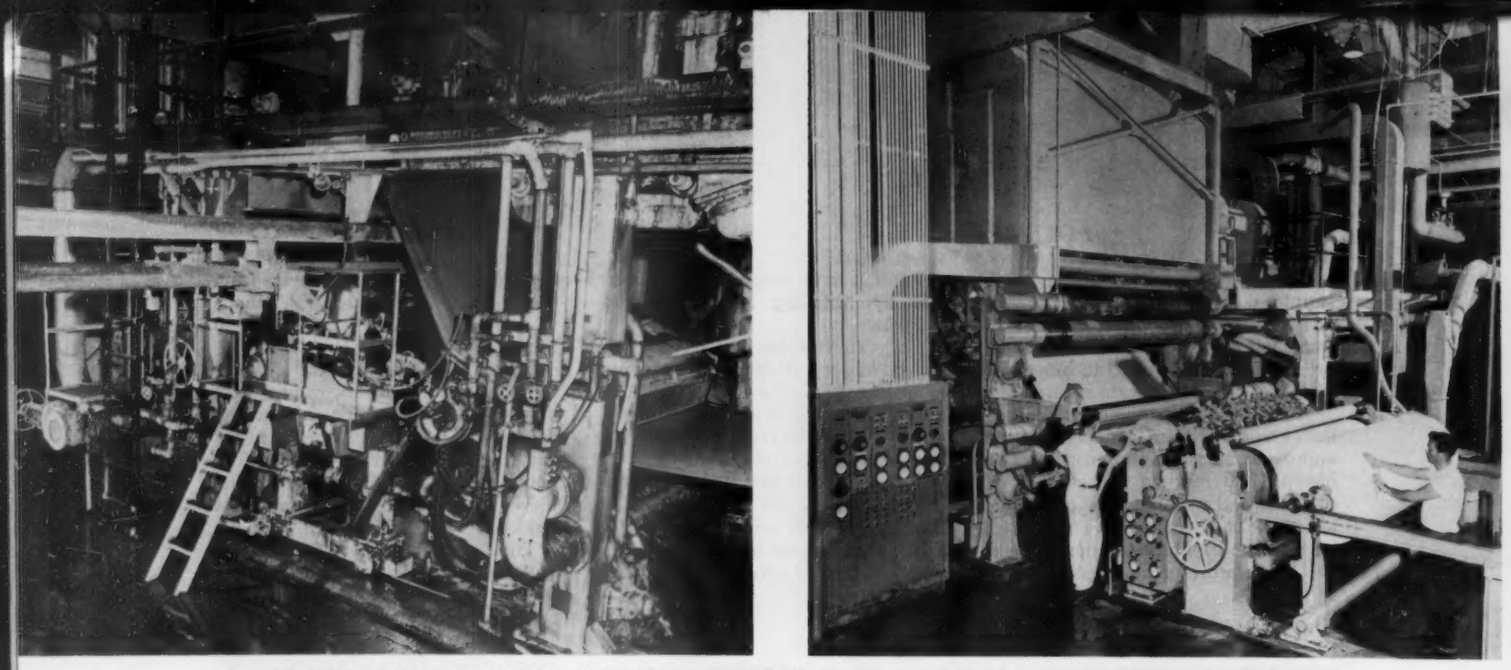
Ubiquitous Peddlers

At Wake-em-Up Breakfast, **Harold W. Bialkowski** (left), director Weyerhaeuser pulp research, is welcomed into Peddlers' Brotherhood by Pres. **Gordon Petrie,** Black-Clawson Co.

More Round Table Panelists

PAPERMAKING (from left): **Harold A. Womack,** Longview Fibre; moderator **T. D. Syme,** Western Kraft; **Richard Adams,** Crown Z West Linn.

FINISHING & CONVERTING (from left): Moderator **Louis W. Pumphrey,** Westminster Paper; **E. G. Weed,** CZ St. Helens; **Vernon Moore,** Simpson Paper; **Lyle Brownrigg,** Pacific Coast Paper Mills, **Harold W. Lent,** Publishers' Paper.



1 **NEWEST "LITTLE MACHINE" for Crown Zellerbach is No. 3 at Antioch, producing tissue at speeds up to 1,400 fpm. Wet end (left differs from other "little machines," uses a short traveling forming wire in conjunction with Stevens former. Dry end (right) the Beloit calender and reel, Reliance drives and control panel.**

Five "Little Machines"

in metropolitan markets hundreds of miles from pulp sources, produce tissue and towels for Crown Zellerbach

• Crown Zellerbach Corp. moved in on a new concept in papermaking when it decided to install small specialty machines far from supplying mills. Purpose: to manufacture consumer products right in the market area served. Subsequent to a tentative adoption of this basic plan came a lot of pioneering—ranging from the sources supplying raw-product pulp to in-plant warehousing and shipping facilities for packaged finish products.

Machines and processes had to be developed or adapted to effectively fit into this bold scheme; structures had to be originally planned, engineered and erected, and personnel obtained and specially trained in the skills required in this manufacturing concept.

Costs Less

Founded on the economic realism that it costs less to bale pulp at the big Camas, Wash. mill and ship it than it does to ship jumbo rolls for subsequent conversion, Crown built two such "little machine plants." Both are in big-market areas of California, one in Los Angeles and the other at Antioch (near San Francisco).

The machines specially designed and developed for these two mills occupy less than one-fourth the space of conventional paper machines. The "secret weapon" incorporated into each is the Stevens former, invented by Samuel Stevens at Erving Paper Mills, Erving, Mass. Beloit Iron Works bought the patent rights and manufactured all five of Crown's "little machines that dared to run away from home."

Vital characteristics of these machines: (1) They produce quality paper; (2) are simple to operate; (3) use a minimum amount of water; (4) occupy less than 2,000 sq. ft. of floor space, and (5) range in rated capacity from 20 tons per day for tissue to 50 tons for toweling.

Sheet formation on a Stevens former, combining cylinder-Fourdrinier principles in a single unit, involves "squirting" stock through a throat onto the cylinder, in a manner similar to that of the slice on conventional Fourdriniers. This gives greater forming freedom than does a Fourdrinier, the simplicity of a cylinder machine and long wire life.

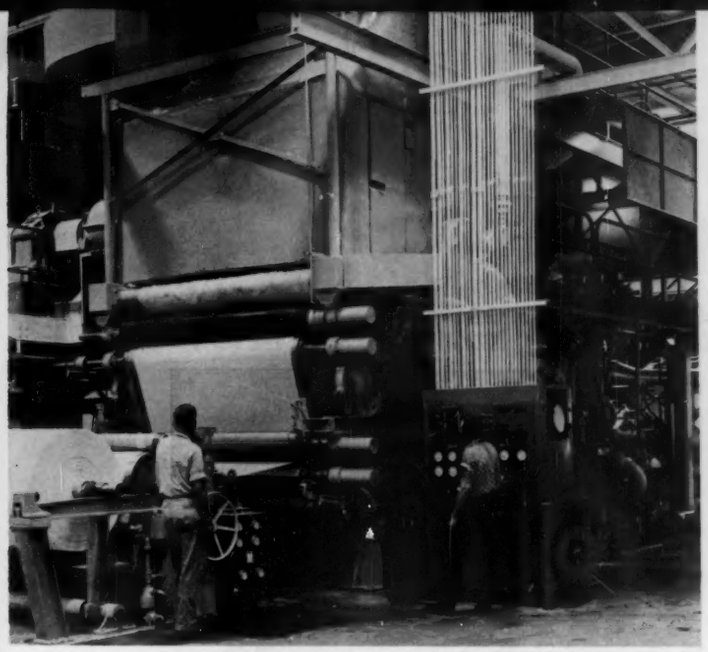
The sheet forms completely on the wire within about the first 10 in. of wire length. Vacuum holds the sheet on the cylinder face until picked off the wire by the felt on a combination suction pick-up and couch roll. The vat vacuum is maintained within a 6- to 20-in. (water) range depending on characteristics of the sheet concerned.

Directional properties of the sheet can be controlled within a broader range than can be obtained on the conventional Fourdrinier, states resident mgr. Gus Ostenson. Consequently, a softer sheet with improved converting characteristics is produced.

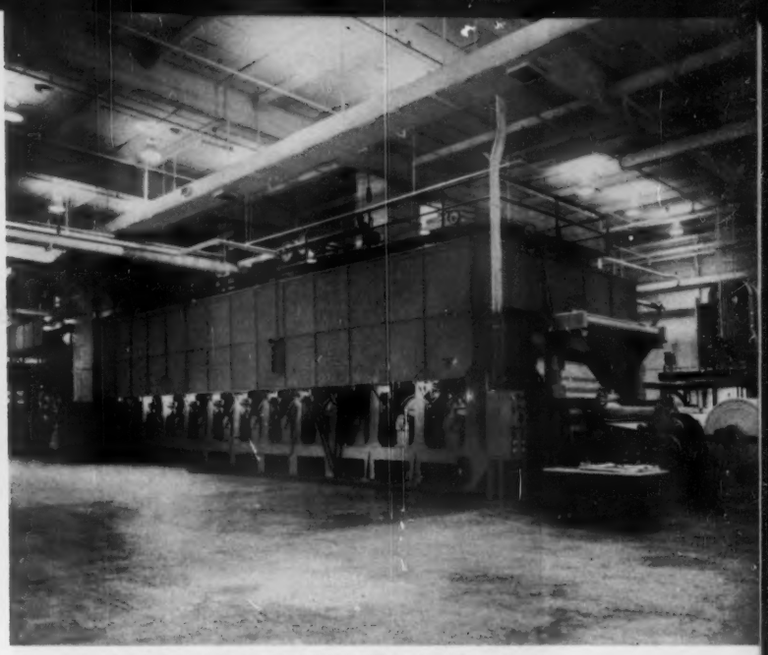
Antioch's New "Little Giant"

Crown Zellerbach's newest "little machine," recently installed as No. 3 at Antioch, combines wet end features of both Fourdrinier and cylinder types. The basic difference between this unit and its predecessors concerns the use of a short, traveling forming wire (23 ft. 10-in. long, 100 in. wide) and some rearrangement of equipment.

The former, which is unchanged from the other "little machines," applies stock to the wire at the same point and in the same way except that the "Fourdrinier" wire (instead of the outer cylinder wire) receives the stock. Actually, the separate forming wire replaces the outer cylinder wire and



2 CYLINDER-YANKEE COMBINATION of No. 4 machine at Antioch produces 40 tons of tissue daily, has been in operation about one year.



3 AFTER-DRYER BALANCES DRYING and wet end capacity for 50-ton-per-day rated capacity of No. 2 towel machine at Antioch.

travels through the forming area in contact with the cylinder.

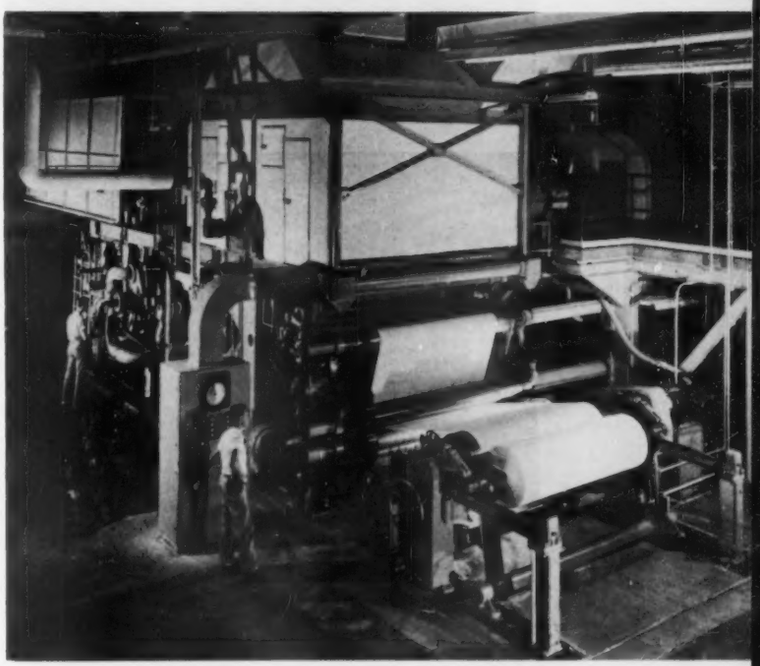
After the web forms on the wire, it remains on the wire and is transported some 6 ft. before being picked up by a felt delivering to the Yankee dryer.

In conjunction with this "Fourdrinier" wire are a 36-in. diam. vacuum mold, one table roll, three return wire rolls, one couch roll and a Beloit wire guide of new design. This compact guide involves an air diaphragm arrangement palm-controlled by the edge of the wire.

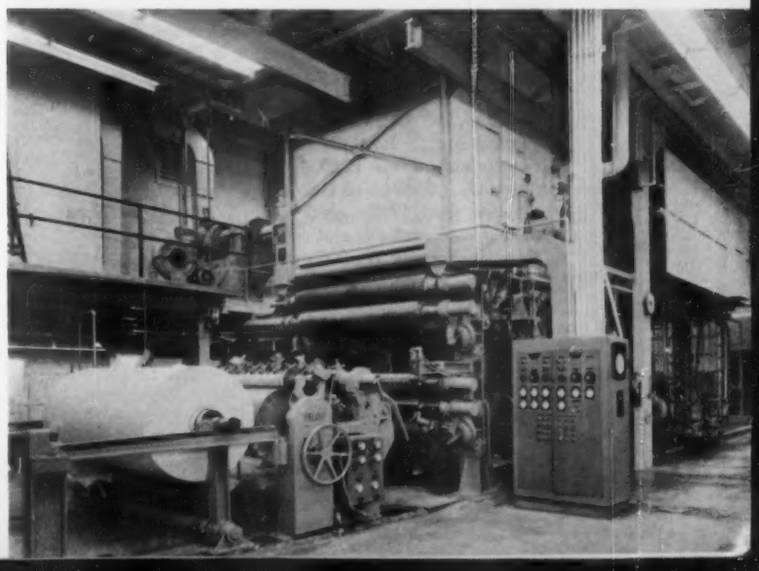
This improved wire arrangement was designed to provide several operating advantages for the newest Antioch machine, according to Melvin L. Wingrove, supt. of towel and tissue manufacture. Should the separate forming wire become impregnated with foreign materials such as pitch or tars, the wire can be washed off while in operation by spraying from the "inside" ahead of the point where it rejoins the cylinder. This is in contrast to the need to shut down for cleaning when the cylinder-mounted forming wires become contaminated.

Other advantages include: Safer draws off the wire, improved sheet formation and production of lighter weight tissues.

This latest machine has a Beloit tension-indicator type wire stretcher equipped with a tabulated air-pressure indicator denoting wire tension. No. 3 machine, equipped with Beloit calender and reel and Reliance drives, has operated in excess of 1,400 fpm wet end speed, compared to an excess of 1,200 fpm for the other "little" tissue machines.

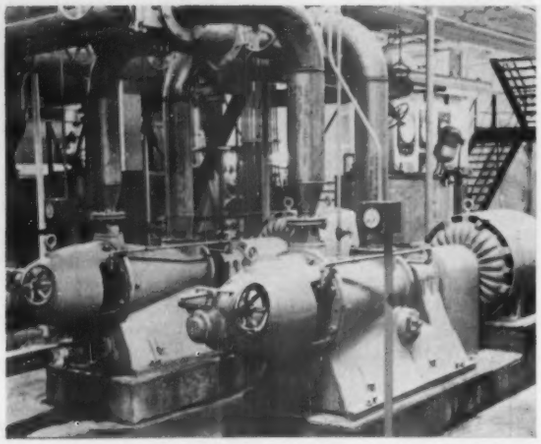


4 FIRST OF "LITTLE MACHINES" was No. 1 at Los Angeles, has been in operation more than two years. Daily rated capacity is 20 tons of tissue.

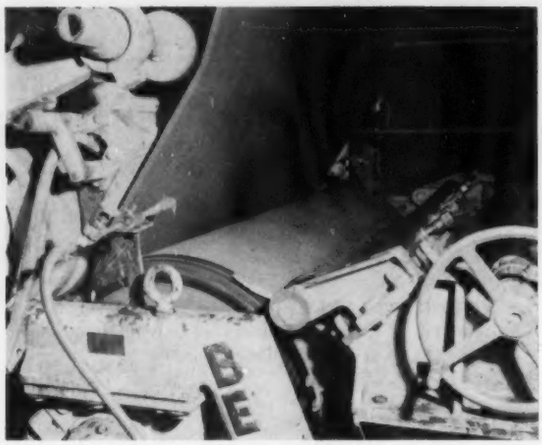


5 ANOTHER 20 TONS OF TISSUE per day comes off this No. 2 machine in Los Angeles; it entered production in 1958.

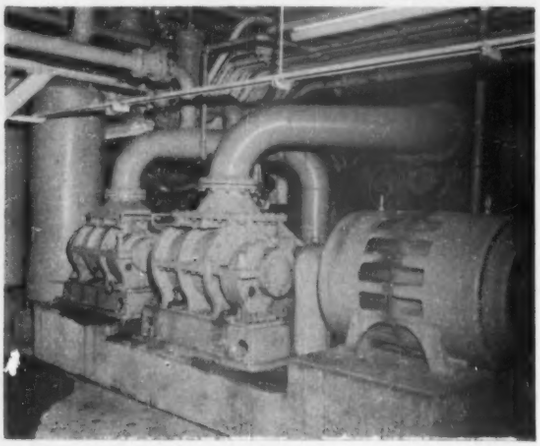
CZ's "LITTLE MACHINES" ...
some picture highlights of interesting features



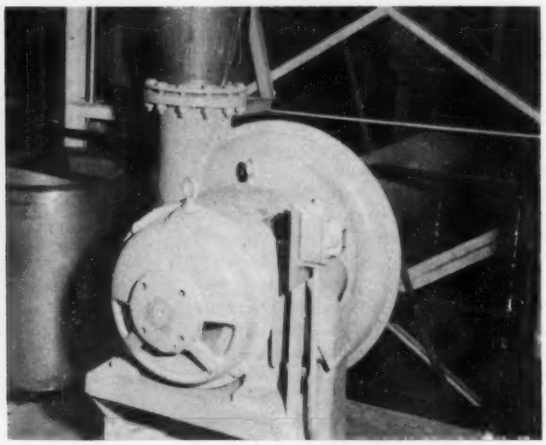
FINAL PULP REFINING is by Jones Stockmasters driven by Reliance motors; stock valves (Hilton) and piping (Northwest Copper) are all stainless.



STOCK APPEARS TO "DRY" on vacuum cylinder within about 3½ in. of Stevens former slice, then travels 2½ ft. to be picked up on felt between cylinder and vacuum couch.



SERVING FELT CONDITIONER, first pressure roll and pick-up couch are these Roots-Connersville rotary vacuum pumps powered by a Reliance motor.

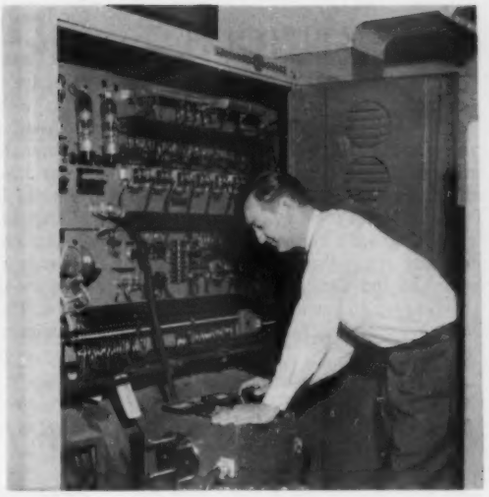


VAT SUCTION, A SLIGHT VACUUM UNDER CYLINDER MOLD and to white water chest are provided by Buffalo Forge fan.

PRINCIPAL SUPPLIERS

Paper machines (with Stevens formers): Beloit Iron Works
Motors and drives: Reliance Electric & Engr. Co.
Ventilation and machine hoods: Drew Engineering Co.
Tile linings: Stebbins Engineering & Mfg. Co.
Building steel: Bethlehem Steel Co.
Vacuum pumps: Roots-Connersville Blower Div.
Pulpers and jordans: E. D. Jones & Sons Co.
Gear reducers: Western Gear Corp.
Agitators (with Phillie gear): James W. Brinkley & Sons
Consistency regulators and valves: DeZurik Corp.
Selectifier screens: Black-Clawson Co.
Felt conditioners and savealls: Bird Machine Co.
Pumps: Ingersoll-Rand Co.
Instruments: Minneapolis-Honeywell
Lift trucks: Yale & Towne Mfg. Co.
Scales: Toledo Scale Co.
Doctors: Lodding Engineering Corp.
Piping and valves: Crane Co.
Stainless pipe: Northwest Copper Works, Inc.
Conveyors: Mathews Conveyor Co.
Fan pump motors and motor control center: General Electric Co.
Doctor blade grinder: Hanchett Mfg. Co.
Roll header: Valley Iron Works Co.
Roll wrappers: Lamb-Grays Harbor Co., Inc.
Condensate pumps: Byron Jackson Pump Div.
Alloy steel piping: Midwest Piping Co., Inc.
Steam controls: Bailey Meter Co.
Unit substations: Westinghouse Electric Corp.

CZ "Little Machines" Have Versatile Electrical Control Center



USING VSMR RELIANCE FIXTURE, Electrical Supervisor Dan Casolari tests the dc amplifier output on No. 2 machine afterdryer MG set. MG sets are arranged so the tester can be plugged in for a complete check of electronic constituents via "cook book" procedure.

Loop feeder lines provide 13.8-kv power throughout the Antioch plant. In case of transmission difficulty at one end of the looped arrangement, it is possible to cut power in at the other end to feed the mill. The overhead line delivers directly to a power center serving the entire little machines section. This line feeds four 1,000-kva Westinghouse substations located in the control center.

Westinghouse liquid-filled Inerteen transformers convert the power to 460 volts. These are three-phase, four-wire Y-connected with neutral grounding. In fact, says Dan Casolari, electrical supervisor for Crown Antioch operations, the grounded neutral system is used throughout the entire plant because of associated advantages in safety, efficiency and maintenance.

The control room contains four General Electric control centers feeding all equipment associated with the little machines. Each motor in the plant bears a stainless steel tag on which appears the number assigned to it. A corresponding number appears at the respective starter in the motor control center immediately adjacent to a marker denoting the process function of the unit concerned.

Heat generated by electrical equipment in the control room is utilized if needed; otherwise, it's vented to the outside. Thermostatically-controlled louvers direct the heated air into the stock preparation area when the latter is below optimum temperature; otherwise, the louvers deflect the heated control-room air outside.

The G.E. control centers feed all ac motors and motor-generator sets—including 10 Reliance package-unit MG sets, all force-ventilated and temperature-controlled. Four of these are on the toweling machine and three on each of the two tissue machines.

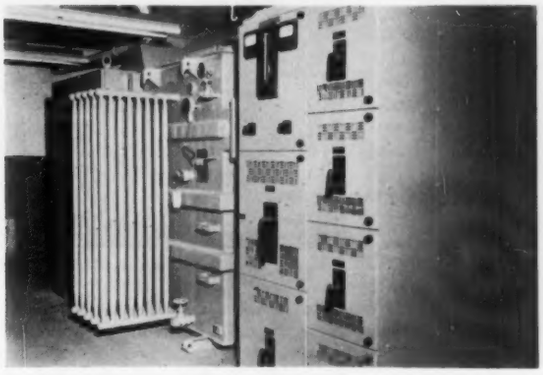
Full parallel circuiting in these electronic control units effectively provides continuous production assurance, according to Mr. Casolari. Should any component fail, a standby unit cuts in and carries the load without affecting motor performance.

The MG sets are so arranged that a Reliance VSMR (variable speed mill regulator) test fixture can be plugged in and the electronic constituents in the unit completely checked by a "cook book" procedure. This can be carried out "by most any journeyman electrician after about one hour of instruction." Such testing discloses malfunction of amplifiers, tubes and power reference circuits.

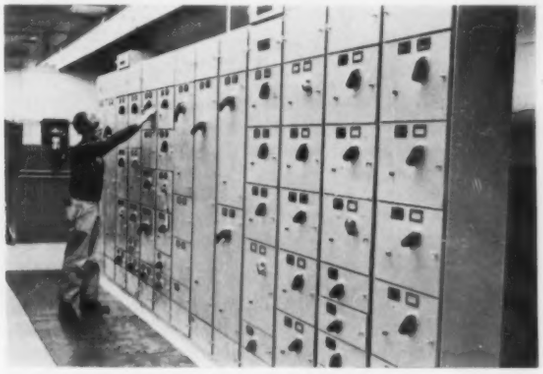
The MG sets control output rpm to within 0.3 of 1% by tachometer-generator feedback to VSMR electronic regulators, the system involving no moving parts other than the tachometer regulators. The VSMR regulators have 1:10,000 gain, hence the feedback is amplified 10,000 times as a signal for converting motor rpm.

Each of the Beloit tissue machines uses three Reliance V*S sectional drives—one for wet end (including Yankee dryer), one for the calender and another for the reel.

The wet end group includes a 100-hp adjustable speed motor driving the Yankee through a 7:1 Western Gear reducer, a 15-hp gearmotor driving the suction pick-up roll and a 50-hp geared unit of variable speed driving the first pressure roll. This Yankee motor is coupled to a tachometer generator that supplies a signal to the VSMR dual-circuit electronic regulator located in a near-by control cabinet. The VSMR compares this signal (indication of motor rpm) with an-



WESTINGHOUSE 1,000-KVA unit substation (one of four in the control room) converts 13.8 kv to 460 volts for towel-tissue mill. Bus duct arrangement permits power feed from any station to any other.



GENERAL ELECTRIC MOTOR CONTROL CENTERS for No. 2 machine—one for wet end, other for auxiliaries. Robert G. Schweitzer, electrical leadman, activates a control member.

other electric signal from the speed-setting potentiometer. In case of differentiation the VSMR instantly corrects the motor speed. Thus, the motor speed is held to constant values.

The group's other motors—15-hp and 50-hp—are helper drives and inherently share the group load at the speed of the Yankee drive motor.

The reel and calender groups have lead motors with tachometer generator feedback circuitry similar to that of the Yankee dryer motor.

Each section is backed by its own Reliance V°S control unit that contains a crawl circuit for operating wet end sections at around 150 fpm for machine wash-up. The Yankee dryer has an independent low-speed "Sunday Drive."

The Beloit toweling machine (No. 2) has basically the same drive components as do the tissue machines except for the addition of an after-dryer drive. The after-dryer is powered by a Reliance dc 60-hp adjustable speed motor through a single-reduction 10.1:1 Western Gear reducer. A tachometer generator, mounted on the motor shaft, provides the feedback signal to a VSMR dual-circuit electronic speed regulator for this section.

The machine is designed to produce 91-in. wide toweling at 1,400 fpm. Weight range at the reel is from 14 to 35 lb. Crepe level of the dry sections can be set at 81 to 100% of wet end speed just by dialing "percentage crepe" rheostats. The drive is also suitable for producing flat paper if that should be desired.

Men Important to Crown Antioch Operation

GUS OSTENSON, resident mgr. since Antioch div. was established in 1955, had been paper production mgr. at Camas, Wash. plant. He joined CZ in 1921 as a winderman at Camas, moved into special assignments in 1930, since 1935 has served in various supervisory and managerial capacities.

TOM W. LEEDHAM, asst. resident mgr., arrived at Antioch via engineering through the San Francisco headquarters, where he was asst. mgr. of industrial engineering. He joined the Camas, Wash. engineering staff in 1946 and became head of the department in 1951; also served as dean and principal of the CZ Paper School.

J. M. MILLER transferred to Antioch as asst. resident mgr. early this year from the Port Townsend div, where he had served in the same capacity three years.

MELVIN L. WINGROVE, supt. of towel and tissue manufacture, joined CZ at Camas in 1956 as asst. to the paper mill supt., moved to Antioch the following year in his present capacity. Previously, he had spent 30 years in towel and tissue manufacture in the Lake States.

R. L. TRIEMAN, gen. supt. for converted products, has been with CZ since 1926, when he joined the Camas staff. He transferred to Portland, Ore., as industrial engineer in 1951, became supervisor of the San Leandro, Calif. grocery bag dept. in 1952. When the northern California converting operations were consolidated at Antioch, he became supt. of towel and tissue converting.

EARL H. EBAUGH, converting plant supervisor, joined the Camas mill staff in 1936, was soon assigned to the napkin dept., became supervisor in 1952. He transferred to San Leandro later that year and moved to Antioch with the converting dept.

T. C. PAISLEY, senior industrial engineer, joined the Camas industrial engineering dept. in 1952, after receiving his masters degree from Stanford Univ. Graduate Business School. He transferred to Antioch in 1957.

Ostenson ..... Leedham

Miller ..... Wingrove

Trieman ..... Ebaugh

Paisley ..... Frazer

E. D. FRAZER, divisional industrial engineer, joined CZ in San Leandro in 1952. A graduate of West Point, he holds a masters degree in business from Stanford. He was with special assignments at San Leandro and St. Helens, Ore. div., and assumed his present title when northern California converting operations were consolidated.

JOHN TILDEN, purchasing agent, is a graduate of the Oregon State College of Education and was prepared for teaching when he joined the CZ staff. He was with the Camas purchasing dept. before transferring to the Antioch div. in 1955.

LYNN WILSON, personnel supervisor, is a business administration graduate of Oregon State College with a minor in wood products. He joined CZ at West Linn, Ore. in 1947, became safety and personnel supervisor in 1952. He transferred to Antioch in 1956.

Tilden ..... Wilson ..... Church

DUDLEY CHURCH, technical supervisor, joined the Camas technical dept. in 1947 as a beater tester shortly after graduation from MIT. He became technical supervisor in 1952, in 1954 was named resident liaison asst. in San Francisco. He came to Antioch while the plant was yet in construction.

Production Planning

. . . is new magic in mill procedure as companies grow, according to sessions at CCPA Western Technical meet. Particle board discussed

● Growing integration of paper mills, diversification of converting plants, competition and products specialization have all contributed in recent years to give a sense of urgency to a new magic procedure in mill operation —production planning.

At the Spring sessions of the Technical Section Western branch, Canadian Pulp and Paper Association, Albert C. Plant, production planning supervisor, Crown Zellerbach Canada, Ltd., Vancouver, B.C., outlined some of the functions and objectives of his department at the company's Richmond division, primarily a converting operation.

Mr. Plant's paper was one of several presented at the Harrison Hot Springs meeting. Among the subjects covered were the Magnefite process, oxidation tower performance, the economics of particle board, continuous kraft cooking and the Bauerite pulping process. Registration totalled 235.

New chairman is Joe Shumka, technical director, MacMillan & Bloedel, who succeeds Dr. John Keays, Powell River Co. First vice chairman is Dr. E. L. Lovell, Alaska Pine & Cellulose, Ltd.; John Bardsley, B.C. Forest Products, Ltd., is second vice chairman. Robert Alpen, C.C. Moore & Co. is secretary-treasurer.

Principle guest speaker was Jack McK. Limerick, technical director, Bathurst Paper Co., and chairman of the Technical Section CPPA, who with Douglas Jones, engineer-secretary of that body, represented the national organization.

Planning Essential

The fact that the paper market today is a buyer's market has according to Mr. Plant, placed new emphasis on service which in turn has made production planning essential.

Many factors have entered into this development, he pointed out. Mills that used to make newsprint only, for example, began to make as many grades as possible in order to diversify their wood purchases. This complicated the programming of these wood species and the problems of pulp transfer and paper machine changeover. Economic runs became of prime importance.

No longer could the plant foreman be given all the responsibility in scheduling production to meet market needs; the job had become too big and complicated for that. Some time ago, Mr Plant said, Crown Zellerbach recognized the need for a "middle man" to function between production and sales staffs—a production planning department that would forecast, purchase and regulate order flow control and inventory control.

"As companies grow larger," Mr. Plant explained "the management pyramid becomes widely separated and it is a full-time job making sure that the right people hear the correct facts at the right time—namely the planning and reporting of trial runs, the development of new products, the effect of new machinery purchases and changes in sales and customer demands."

Bauerite Pulping Process

Use of the Baurite pulping process since its introduction three years ago has led to greater utilization of wood species and has eliminated the necessity in many mills of using whole logs as the starting point in the operation, according to W. M. Orchard, of Bauer Bros., Springfield, O.

Mr. Orchard said that it has become possible to produce usable groundwood pulp from sawdust through application of the Bauerite process. Any species now used in groundwood pulping, especially hardwood, can be satisfactorily accommodated.

Ten mills, including three in Japan, are now using it and two more are under construction. Largest application is at Bowaters Southern mill.

However, despite its versatility the Bauerite process is unlikely to eliminate the grinder. In Mr. Orchard's opinion the advantages of Bauerite are that groundwood pulp can be produced from hardwood; that whole logs are not needed. "The payoff is in the economy and ease in handling," he said.

Future for Particle Board

The question "How Profitable is Particle Board?" was answered by Ian B. Kay, of Columbia Engineering Co., Ltd., who has designed plants both in the U.S. and Canada.

Barring unforseen developments, Mr. Kay said, the time appears close at hand when flakeboard will take over a large portion of the construction market now enjoyed by fir plywood, particularly in the East where plywood is already burdened by high shipping costs. "The day that this happens is likely to be a sad one for

MEMBERS OF THE NEW EXECUTIVE of the Western branch, Technical Section, CPPA, elected at the annual meeting at Harrison Hot Springs are; left to right: Front row—Dr. E. L. Lovell, Alaska Pine & Cellulose, Ltd., first vice chairman; Joseph Shumka, MacMillan & Bloedel, chairman; J. H. MacMillan, chairman, lower mainland branch; Back row—Dr. John B. Keays, Powell River Co., retiring chairman; John Bardsley, B. C. Forest Products, second vice chairman; R. R. Alpen, C. C. Moore & Co., secretary.

West coast plywood manufacturers," he said.

Mr. Kay emphasized that particle board manufacturer can be an effective and profitable means of utilizing low-value wood, but that its feasibility in any particular situation would depend on selection of a product and manufacturing facilities that are consistent with raw materials and markets.

To compete successfully with sheathing grade plywood, particle board would have to be strong, stiff, waterproof and cheap. Such material would be superior to plywood in having a more uniform thickness and smoother, defect-free surfaces.

"Some exterior grade, phenolic-bonded particle boards are now being produced, but their structural properties are still inferior to those of plywood," Mr. Kay said. "Flakeboards have been made on a laboratory scale which are just as durable as plywood, stronger and with a better surface. The obstacles to their commercial production are not so much technical as economic. They cannot yet be made cheaply enough. But this situation is bound to change. Quite apart from the prospect of technological advances, economic considerations alone indicate that the price spread between exterior flakeboard and plywood must narrow and eventually become a negative quantity.

"Over 75% of the cost of making plywood is represented by peeler logs and direct labor, and the prices of these two commodities are unlikely to move in any direction but upward. In the particle board operation, on the other hand, wood and labor form only about 30% of the cost of production, and the most expensive single item is resin, whose price has actually been decreasing in recent years."

Factors for Success

For the manufacturer contemplating entry into the particle board field Mr. Kay gave these factors that should determine the success of the venture:

1. An adequate and near enough market;

2. Plenty of wood in quantities of at least 25 tons a day at a delivered price of $10 a ton or less;

3. Sufficient capital—$500,000 or more, depending on size of plant;

4. A situation where available resources of wood, water, power or capital are insufficient for the manufacture of alternative wood products such as insulating board, hardboard or pulp. Particle board plants can exist on substantially smaller quantities of such resources than can the other industries mentioned.

Magnefite pulping process

In view of the industry's interest in the Magnefite pulping process, one of the papers that aroused exceptional attention was the joint presentation by M. D. Robinson, Weyerhaeuser Timber Co., Cosmopolis, Wash., and D. W. Harris, C. C. Moore & Co., Seattle, outlining a comparative study of process costs.

A mill-scale test of the Magnefite process was carried out at Weyerhaeuser's Cosmopolis mill late last fall to determine if any unusual problems would be encountered in the recovery plant with Magnefite liquor. Operation for a 60-hour period burning only Magnefite liquor showed no problems, and from a furnace and evaporator standpoint it was difficult to observe any change over the regular operation.

The steam production per ton of finished pulp was equal or slightly better than standard sulfite acid and sulfite. As evidence of the soundness of the Magnefite process seemed established, logically the next step appeared to be one of economics, and this could be determined only by adequate consideration of the many factors involved—wood supply, market, type of pulp produced, etc.

It is admitted that accurate comparisons are hard to obtain because of difference in terrain foundations, types of building labor rates and other factors. However, detailed definitive estimates, based on the same concept of equipment quality with the same type of building construction for the same location, were made by the authors.

"Admittedly, there is a possibility of savings in capital cost in each process by the use of continuous digesters, evaporative-Venturi scrubbers, etc.", state Mr. Harris and Mr. Robinson. "It is significant that the complete liquor and recovery cycle of the two processes, acid or liquor making, recovery boiler and evaporator are over $500,000 cheaper for the MgO recovery system over the kraft. The other significant differences in the cost comparison of these two processes are the increased cost for sulfite digesters department and the extra cost for a kraft bleach plant."

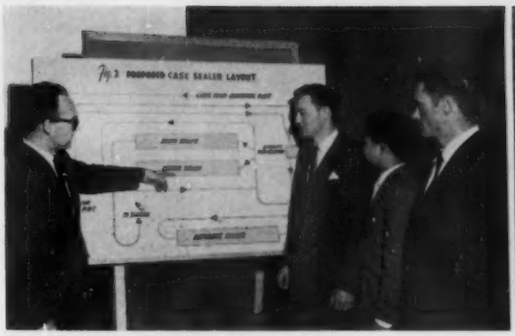
Wake-em-up Breakfast

James Petrie, resident manager, MacMillan & Blodel, Port Alberni, was elected honorary member of the IBMP and inducted at the Wake-em-up Breakfast party.

HAROLD MOORHEAD (right) vice president engineering, Powell River Co., won the J. A. Young Trophy in the golf tournament at Harrison Hot Springs. John Godding, Crown Zellerbach Canada, makes the presentation of the trophy named for J. A. Young, for many years an executive of CZC.

FOR THE THIRD YEAR in sucession a Powell River Co. man has won the Powell River Co. award for the year's best technical paper presented in competition under the sponsorship of the Technical Section CPPA. Vice pres. W. C. R. Jones presents the cash prize to Roy Meret, engineer (right).

PRINCIPAL LUNCHEON SPEAKER at the annual meeting was Jack McK. Limerick, research director of Bathurst Power & Paper Co., Bathurst, N. B. and chairman of the Technical Section CPPA.



Carlson ..... Bell ..... Back ..... Murray

COMPETING FOR THE 21st SHIBLEY AWARD presented recently at Pacific TAPPI's 30th anniversary meeting in Camas, Wash., are (left) Richard L. Carlson Jr., Crown Zellerbach, Camas; J. P. Bell, Westminster Paper; Sangho Back (the winner) Crown Zellerbach central research and J. S. Murray, Pulp div., Weyerhaeuser Timber

Nethercut ..... Lea ..... Back

Co. P. E. Nethercut (center), executive sec.-treas. of national TAPPI, is shown addressing the meeting where he was a featured speaker and Sangho Back (extreme right) shakes hands with N. S. Lea, Scott Paper Co. on receiving the $100 award for original research and thesis on tests for sack paper.

New Tests for Sack Papers

. . . win for CZ chemist the Pacific TAPPI 21st Shibley Award

• New techniques for testing multiwall bags and parent papers show promise of increased reliability and usefulness. Although the drop test can be used to determine the suitability of a bag for specific product specifications, until now papermakers have been unable to determine the suitability of specific papers for prospective sack designs.

The development and presentation of material supporting the thesis that better testing can be developed for multiwall bag papers has won Pacific TAPPI's 1959 Shibley Award ($100) for Sangho Back, asst. chemist in the Central Research dept. of Crown Zellerbach Corp., Camas, Wash. The award was presented by N. S. Lea of Scott Paper Co. at the association's 30th anniversary meeting in Camas.

According to Mr. Back, extensive work has already been done to develop a reasonable test method that will predict end-use performance, but he states, "definite criteria have not been available for judging whether a given sack paper or sack is suitable for practical use. The classical test methods, such as tensile, tear, fold and mullen, tell little about the suitability of a paper for sack making; and, judging by the specifications now in use for sack papers, a great deal of unsuitable paper is being accepted."

Mr. Back pointed out that the classical tests for paper employ static forces instead of dynamically-acting forces.

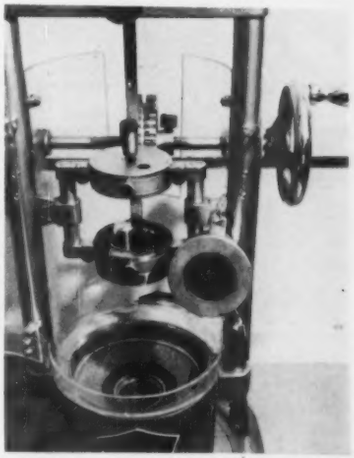
"A wide variety of impact tests is used in the laboratory to test the suitability of sacks. Those commonly used are the drop test, tumbling drums, shoulder throws and inclined planes. All have advantages and disadvantages. As a group, these tests have certain controllable elements such as impact forces, sack position and conditions of temperature and humidity. However, they have a large inherent variation, since the whole package is being tested. Variations have been encountered ranging from 12% to more than 50% of the mean value; so, a large number of tests is usually necessary to obtain a reasonably accurate picture of the sack's suitability. The greatest problem, however, is the lack of uniformity in testing equipment."

New Tool Available

A dynamic tester, manufactured by Karl Frank GmbH, Weinheim (Virkenau), Germany, has been designed to determine the practical resistance of paper to dynamic stress. This instrument, known as the FRAG, reputedly duplicates the stresses to which sack paper is subjected while in actual use. Besides, multiple plies of paper can be tested with the FRAG.

"If this is true," states Mr. Back, "the result could give the sack-maker information about his sacks that previously could be gained only through extensive drop testing or field trials."

A FRAG was obtained to ascertain its usefulness in determining the potential suitability of sack papers and sack design. This electric-powered machine is designed for testing paper specimens (2½ in. square) that are affixed to the bottom of a conical cup, the latter then loaded with 1-mm shot in amounts ranging up to 250 gm.



GERMAN-MADE FRAG Tester is considered a means of selecting papers for the most economical sack construction.

SHIBLEY AWARD

Tests consist of continuously dropping the component from either of two heights (14 cm or 21 cm) until a break occurs in the specimen. "In this way a drop energy level can be selected," reports Mr. Back, "for any material to give a drop number in the 5-to-50 drop range."

Changes in drop test performance for the different papers used in sack construction were explained 94-99% of the time by linear changes in FRAG testing. Both tests measured the same effect, and paper failure was shown to result from similar stresses. The relationship between the two tests seems to be most accurately described in their cubic functions.

The relationships found between these two tests were valid only for sacks of a definite construction, apparently independent of the paper quality used. No direct correlation exists between the two tests on different stack construction. Still, the relationships were of the same form.

Discrepancies in ranking by the two tests occurred where the same sacks contained different quality plies. These were explained by the physical differences between the two test methods. In the drop test these ply differences were thought to cause changes in the stress distribution; and, in the construction feature termed "nesting," to give a higher performance level than indicated by the FRAG test results.

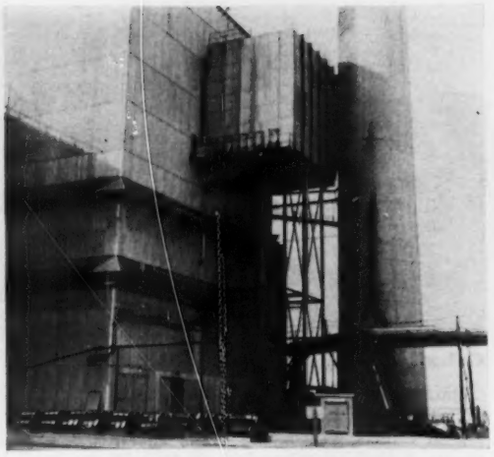
The drop test was influenced by changes in number of plies and basis weight in the same way as the FRAG results. The burst energy for any given number of plies could be estimated by multiplying the FRAG burst energy for a single ply by the 1.514 power of the number of plies.

Test conclusions: In practice, both the FRAG and progressive drop test may be used to compare sacks made from different papers, but they may not be used interchangeably for sacks of different constructions. The FRAG test may be used to compare different numbers and weights of plies to arrive at the most economical sack construction in a more reliable, quicker and less costly manner.

Scrubber Eliminates Fall-Out

A two-year project at the Everett, Wash. Pulp div. kraft mill of Weyerhaeuser Timber Co. has effected remarkable elimination of dust from stack gases.

Prior to undertaking this project, the kraft recovery system operated at 99.5% effectiveness. Of each 100 lb. of chemicals entering the recovery process (consisting of recovery furnace, black liquor cylone, electrostatic precipitator and stack), 99.5 lb. were recovered for use. As a result of installing the scrubber, which was developed and designed as a part of this project, losses were reduced to a bare 0.05 lb. per hundredweight, upping the system's over-all effectiveness to 99.95% efficiency.



SPRAY TYPE SCRUBBER at the Everett, Wash. kraft mill of Weyerhaeuser Timber's Pulp div. removes fly ash from gases between precipitator and stack. The unit ups the over-all recovery system efficiency to 99.5% on a basis of chemicals going to the recovery furnace.

The project, reported in a Shibley Award paper by J. S. Murray, project chemical engineer at the mill, involved working out valid test procedures, making extensive analyses and testing various sorts of pilot plant scrubbers.

The resultant scrubber, was installed between the precipitator and recovery stack. Of stainless steel construction, this unit contains four banks of specially-designed Venturi throats. The throat pieces are approximately 12 in. in diam., and there are 473 of them in all. The Venturi throat pieces are mounted on baffle plates that form the compartments. A machined nozzle (built by Spray Co.) with a 3/16-in. opening operates in conjunction with each port.

Approximately equal numbers of Venturi throats are contained in each of the four sets, and the openings in the adjacent panels are staggered so the gas cannot go directly through from port to port. Consequently, high turbulence results within the scrubber as the driving action of fine spray from the nozzles impells the flue gas through the associated Venturi openings. Slight pressure drop takes place across the scrubber.

Water supplied to the nozzles at 40 psi sprays through each throat piece at around 5 gpm. During periods of abundant water, fresh water is supplied to the last two spray banks, recycled water to the first two banks. When the water supply becomes less abundant, fresh water goes only to the final bank of nozzles, recycled water going to the other three.

No attempt is made to recover the water-captured chemicals. In the first place, according to Mr. Murray, the solution is too dilute; secondly, chlorides captured in the process (directly traceable to logs stored or transported in salt water) present recovery problems.

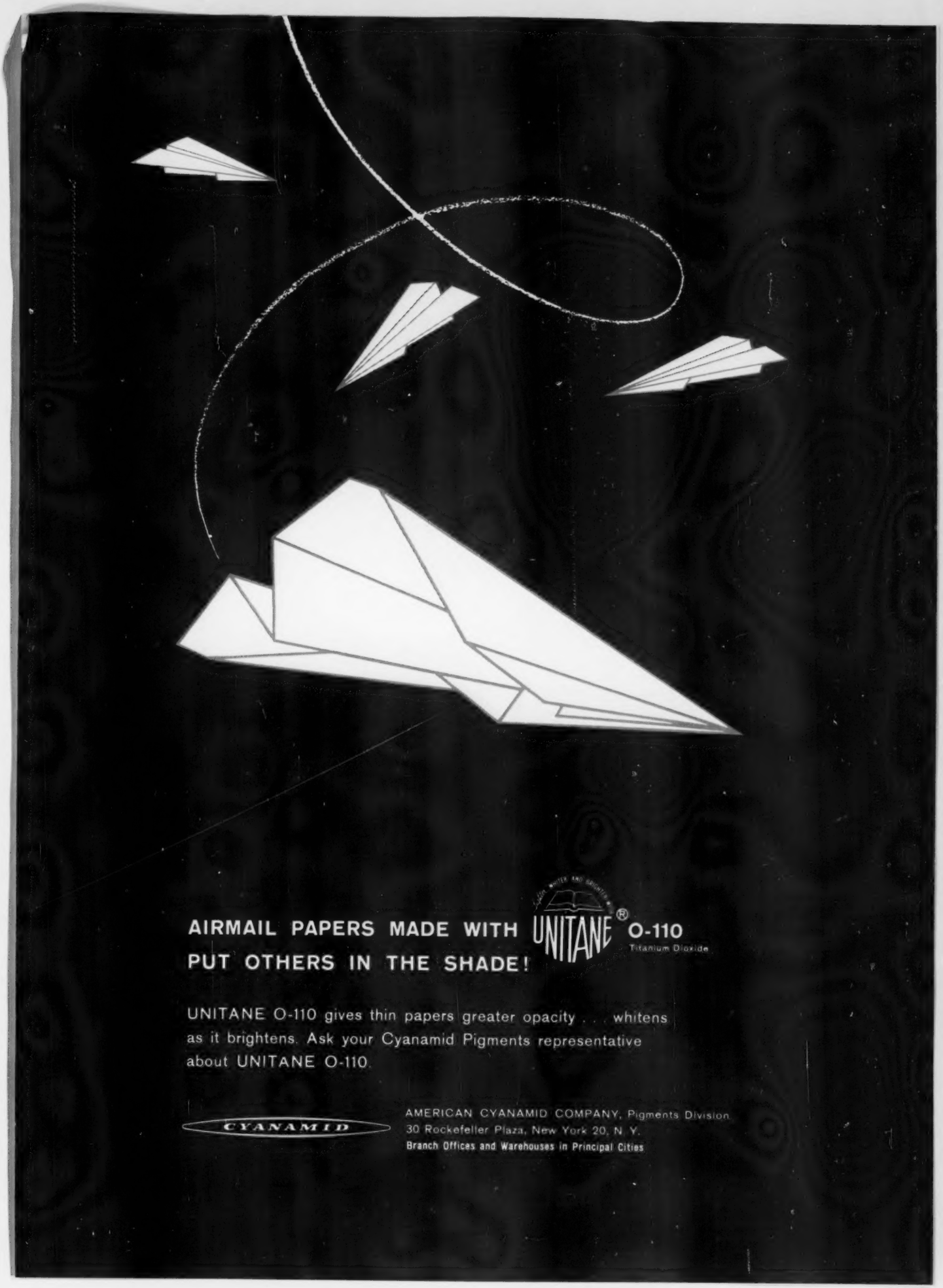
J. P. Bell, chemist for Westminster Paper Co. Ltd., New Westminster, B.C., participated as a Shibley Award contestant with a paper covering problems encountered in the production of paper towels. His study, covering the past five-year period, indicates basic necessity "for careful laboratory evaluation of changes in the chemical furnish and the need for an investigation of the colloidal conditions existing in resin-treated white waters."

To Increase Case-Sealing Capacity

As a result of production at the Crown Zellerbach converting plant at Camas having increased beyond the capacity of the case-sealing facilities, a correctional study was undertaken.

The results, reported by Shibley contestant Richard Carlson Jr., industrial engineer at the Camas div., were: (1) an 80% increase in capacity, (2) a reduction in number of cases manually handled by the sealerman, (3) less case damage and (4) tangible cost reductions of $18,000 per year.

The sealing capacity increases were achieved by two divergent approaches. First, the capacity of the sealers was doubled—from 6 to 12 cases per minute—without increasing length of the press section. Secondly, the case sealer layout was revised to facilitate better materials flow and handling. This included developing a new type unit for selecting cases of the same size for automatic sealing. Its aim was to determine how to increase sealing capacity and, at the same time, reduce costs.



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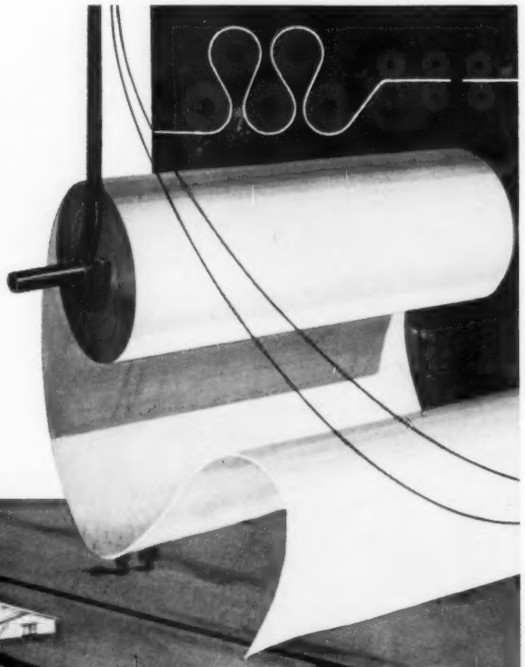

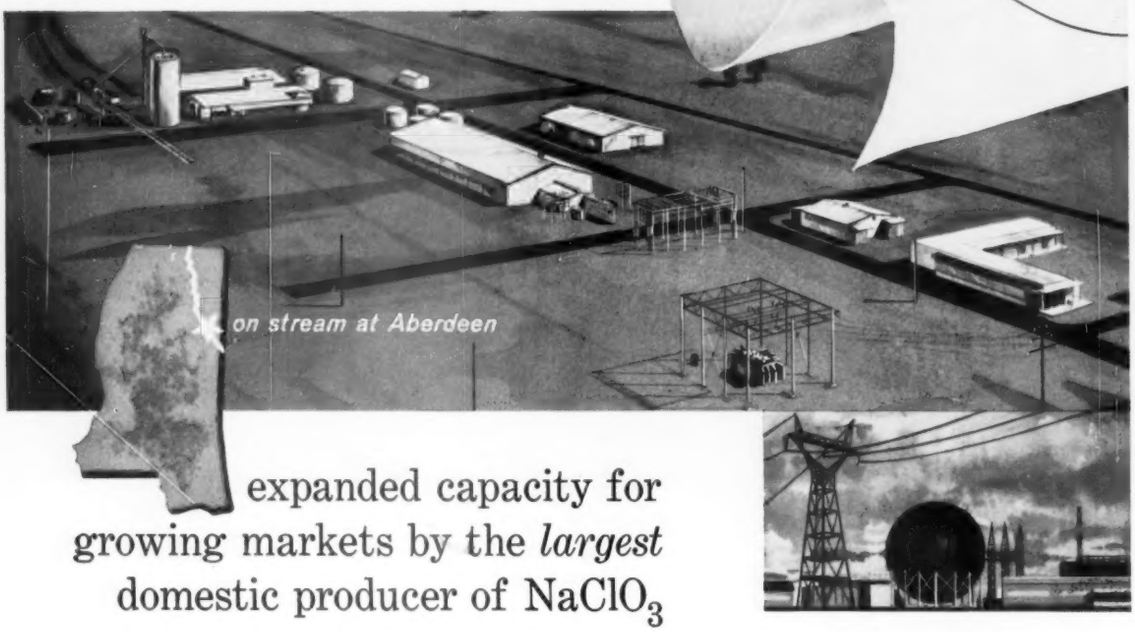

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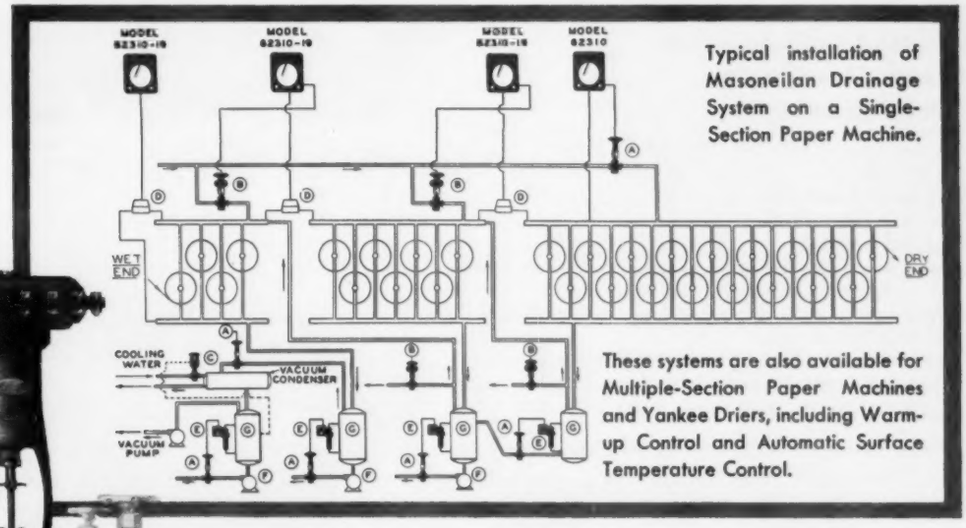

Typical installation of Masoneilan Drainage System on a Single-Section Paper Machine.

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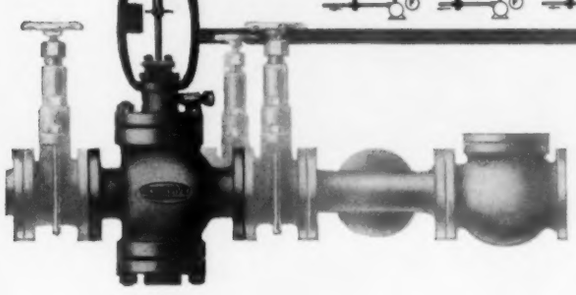

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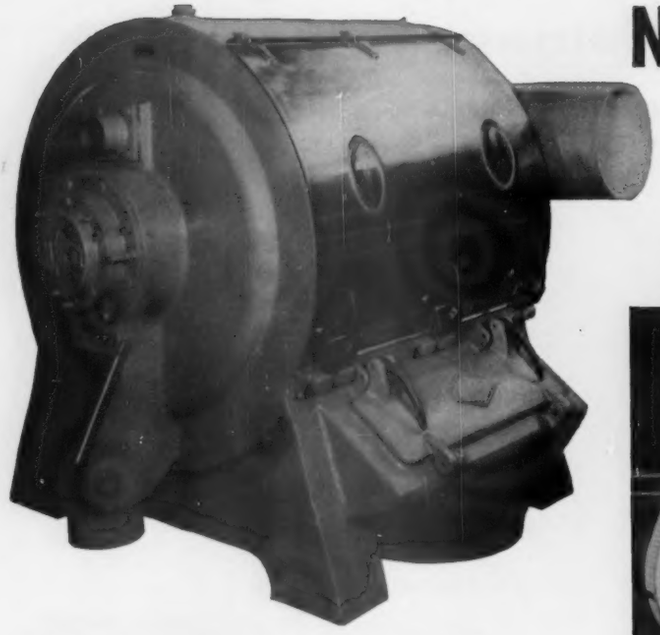

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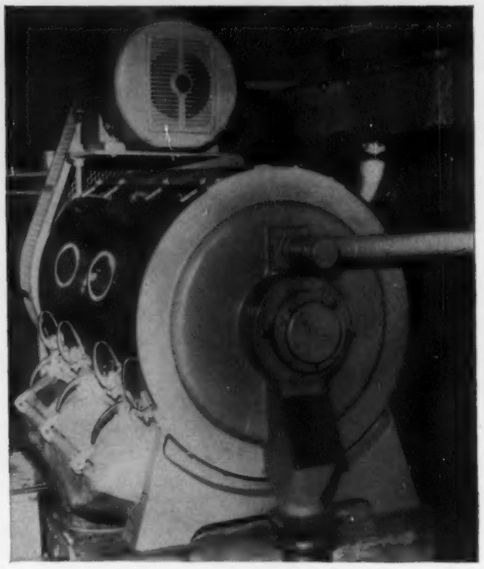

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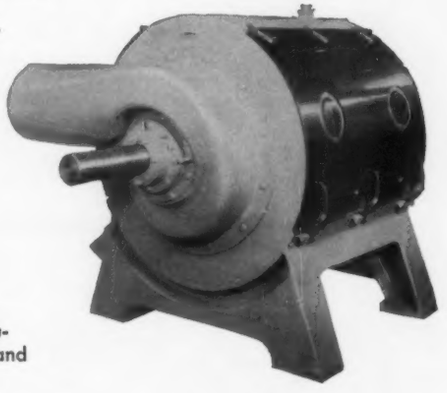

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PP-25

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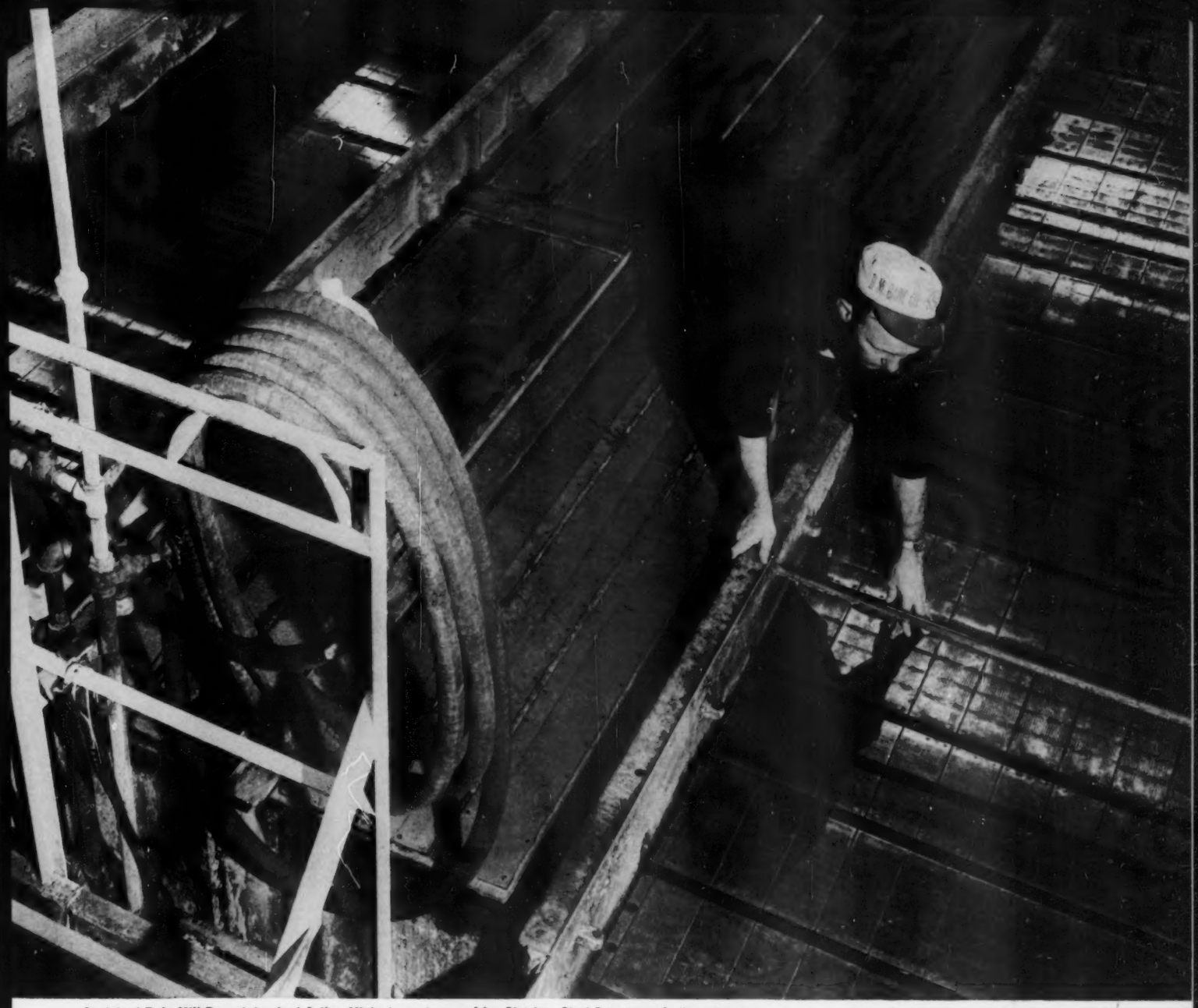
Top left: 40-ft. long digester designed for working pressure of 150 lbs. per sq. in. leaves our Birmingham plant where it was X-rayed and stress-relieved.

Middle: Digester leaves CB&I stress-relieving furnace at our Birmingham plant. Furnace can handle vessels up to 13-ft. diam. by 79-ft. long in one heat.

Below: 60-ft. high digesters erected, stress-relieved and seam welds X-rayed in the field by CB&I at Weyerhauser's 400-ton sulphite pulp mill at Cosmopolis, Washington.



Assistant Pulp Mill Superintendent Arthur Hicks inspects one of five Stainless Steel flat screens in the wet room.

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Pulpwood Production Trend Rises

. . . but industry faces legislative fires in the halls of Congress, where Wage & Hour Act changes are proposed.

By W. S. BROMLEY
Executive Secretary
American Pulpwood Assn.

● United States pulp mills consumed a total of 35,229,000 cords during 1958. This preliminary total recently released by the U.S. Bureau of the Census is only 517,000 cords (or 1.5%) less than the consumption figures for 1957.

From these records and those of the American Pulpwood Assn., three other significant points about 1958 pulpwood activities are obvious:

1. Receipts of chips, slabs and other wood residuals increased from 4,333,000 cords in 1957 to 5,125,000 cords last years—up 18%. Most of this change took place in the South, but all regions showed some growth.

Total Receipts in Cords

Region	*1957*	*1958*
Northeast	104,000	138,000
North Central	3,000	9,000
South Atlantic	350,000	840,000
South Central	683,000	911,000
West	3,193,000	3,227,000
Total	4,333,000	5,125,000

2. In spite of the decrease in total consumption, the amount of hardwood pulpwood consumed in the U. S. increased from 6,300,000 cords in 1957 to 6,403,000 in 1958.
3. The policy of the Province of Ontario in shutting off most exports of pulpwood from Crown lands—combined with the leveled-off economic conditions in the Northeast and West—had an appreciable effect in lowering total imported pulpwood receipts from 1,841,000 cords in 1957 to 1,534,000 last year.

All three show the clear-cut progress of the industry as a whole in (1) the utilization of residual slabs, edgings and other left-overs from wood-using industries; (2) the use of more hardwoods, and (3) less dependence upon imported raw materials.

Inventories of pulpwood in the northern and western regions were appreciably lower (10%) at the end of 1958 than they were at the beginning. With the demand for pulp and paper products increasing, 1959 should be a good year for the production and consumption of pulpwood. The trend looks good enough now to say that pulpwood consumption in 1959 may exceed the peak year of 1956, when some 35,700,000 cords were consumed.

Legislative Trial Ahead

Considering the federal legislative climate, the prospects for the year ahead are not altogether promising. Pulpwood producers, dealers and consumers are concerned over proposals to (1) eliminate the 12-man and seasonal exemptions granted to forestry and logging operators under the provisions of the Wage & Hour Act and (2) increase the minimum hourly wage from $1.00 to $1.25. Such efforts are outlined in S. 1046 introduced by Sen. John Kennedy (D., Mass.) and by HR. 4488, a companion measure introduced by Rep. James Roosevelt (D., Cal.).

The passage of these bills would force many small pulpwood operators out of business. It would impose the unproductive and impractical task of supervising and recording on time cards and other records the time worked in the woods by woods workers. These men are not accustomed to working on set hourly patterns, but to working on a piecework basis. This is essential for small operations, where the workers are scattered and cannot be checked at regular intervals to conform to time card reporting.

W. S. BROMLEY: "1959 should be a good year for the production and consumption of pulpwood."

Since better than three-quarters of all pulpwood in the U.S. is produced under the 12-man and seasonal exemptions, it is imperative that they be retained. The threat of this proposed legislation—together with the need for action to have it either set aside or defeated on Capitol Hill—will probably plague the pulpwood and other forest products industries for this and the next session of Congress.

Aerial Firefighting Cuts Size of Forest Fires

Because of greatly increased use of aircraft in forest firefighting, the acreage burned on U.S.A. national forests dropped almost 15% in 1958 despite a 53% increase in the number of fires, the U.S. Department of Agriculture reports.

Lightning and extended dry weather on the West Coast caused forest fires on lands protected by USDA's Forest Service to increase from 7,195 in 1957 to 11,050 in 1958. The area burned, however, dropped from 141,000 acres in 1957 to 120,000 in 1958. During the past five years the area burned averaged 244,125 acres.

Larger tanker planes are being used for dropping fire retardents to get fires under control faster. A cheaper retardent, bentonite, is lighter in weight and proved just as effective on an experimental basis as sodium calcium borate mixed with water used exclusively until 1958.

Plan to Make China "Green"

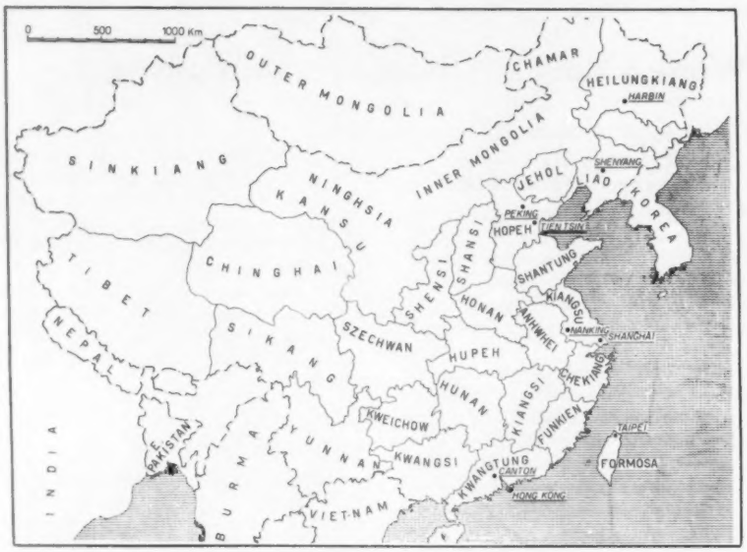
12-year program aims to more than double forests. French visitor says achievements in few years are "astonishing"

● The Chinese People's Republic—Communist China—with its 602,000,000 inhabitants, each consuming only 4 lbs. of paper per year, is very poor in forest land. Only 7.9% of its 9,500,000 sq. kilometers (an area equivalent to that of Europe and one-third larger than continental U.S.A.) is forested.

However, Jean Messines, inspector-general of water and forests, Grenoble, France, reports that this situation is rapidly changing. As member of a French economic and technical mission which spent six weeks in China in late 1957, he has written a report recently published in *Unasylva* by the FAO Forestry Division of the United Nations.

"Starting practically from nothing, the Chinese foresters have, in a few short years, achieved some astonishing results," said M. Messines.

"The development of industry is on its way to transforming this backward agricultural country into a progressive industrial nation—to use a phrase the Chinese employ themselves," he writes. "There is a prodigious development in towns and cities. There is a sustained industrial evolution, primarily in heavy industry, but also, though less spectacularly, in light industry." But, he added, the timber shortage is "shackling desired expansion in several industries."



ONLY 8% OF CHINA IS FORESTED. In northeast are oak, ash, maple, poplar, fir, spruce, pine. In far northwest are pines and Alpine type area. Deserts and loess (see article) are in central areas. In south are tropical forests. In many sections, tropical and temperate-type forests merge.

Production Will Be Doubled

Reports directly from Peiping reveal that its pulp and paper production has quadrupled since World War II. Under a Second 5-Year Plan, it is to reach 2,750,000 short tons of paper and board by 1962, more than twice its present production. Imports are to be reduced to 5,500 tons from the present level of 165,000 tons. The number of pulp and paper mills will be increased from 13 to 39. Another 70 non-integrated paper and paperboard mills are to be built.

Under the Second 5-Year Plan, woodpulp will provide 39% of raw materials, the rest being bamboo, straw, bagasse and other fibers. Cellulose production is scheduled to be increased by 154,000 tons to 165,000 in 1962.

With this background from PULP & PAPER's reports, M. Messines' comments take on significance. Following are some of the highlights.

"The actual figures adopted (for forestry) for the Second 5-Year Plan are not yet known, but it is thought that the latter plan will adhere to the provisions of the 12-Year Plan drawn up in 1956 'to make China a green country,' calling for afforestation of 92,000,000 hectares (225,340,000 acres). China had 76,600,000 hectares in forests in 1956, so the total will be 168,600,000 hectares, raising the proportion of forested land from 7.9% to 19%.

"It is claimed that 10,300,000 hectares have been planted in four years of the First 5-Year Plan (up to end of 1956). But the 12-Year Plan, if fully implemented, would call for an afforestation program four times as fast. This would be, perhaps, somewhat difficult to achieve.

"The total volume of growing stock is estimated at 5 thousand million cubic meters, i.e., an average of only 65 cubic meters per hectare. These figures are provisional because a detailed inventory of forests has not yet been completed.

"But clearly China is inadequately forested. During the former Empire, the forest cover was progressively destroyed and steps were rarely taken to restore it. Uplands were usually denuded. It is considered that, in historical times, 300 million hectares —30% of the land area—were deforested. As shown later, continually increasing erosion still ravages over half of these lands today, denuding 160 million hectares.

"This deforestation affects some provinces much more than others. There are still some fairly well-wooded upland regions. For example, the province of Szechwan is still 30% wooded with 13,300,000 hectares of forest; for Yunnan, the figures are 23% and 10,700,000 hectares. The provinces of Hunan and Fukien in the tropical zone are respectively 19% and 18% forested.

The most extensive forest area is that of the uplands of north and east Manchuria: this covers 20 million hectares and is China's main source of commercial timber—about 2,400 million cubic meters. Of the three Manchurian provinces, the best wooded is Heilungkiang. Its 460,000 square kilometers, almost as large as France, includes 13 million hectares of forests and 1,600 million cubic meters of standing timber, mainly coniferous—about 120 to 125 cubic meters per hectare. This is not very much considering that the moderate uplands with their cool damp climate are natural forest lands, but the stands have been seriously affected by wartime felling and by fires." (He said rate of cutting in China is still very heavy, due to pressure of demand.)

Plenty of Poplar in China

M. Messines said China is "rich" in poplar, including aspen and balsam types, and also eucalyptus, both good pulp species in many countries.

"The forests stretch from the cool and warm temperate zones to the tropical zones and are of very different types and include a great variety of species," he wrote. "More than 5,000 woody species have, indeed, been recognized, among them about 2,000 forest trees: in all, 700 genera and 130 families.

"The typical tree of rural China is a willow, *Salix matsudana*. In the parks on the outskirts of Peking, the visitor can soon identify *Ginkgo biloda* and *Juniperus chinensis*, *Pinus tabulaeformis* even on farms and, as well as *Sophora japonica*, *Ailantus altissima* and an elm, *Ulmus pumila*, found widespread from north to south. Finally there is the robinia (false acacia) which seems to grow everywhere.

"The forest landscape in Manchuria has a familiar look to a Western forester, for he finds there a forest of temperate type, dormant in winter, containing numerous deciduous species, such as oak, ash, maple and especially poplars, aspens and birch, as well as various coniferous trees, i.e., firs, spruces and particularly pines and larches. Somewhat similar types of forest are found in the other mountain regions of north and northeast China, especially in Inner Mongolia."

M. Messines devotes much of his article to a discussion of the vast eroded areas of China and that ancient geological phenomenon, "loess." This is a yellow-gray silt, finer than sand, covering 1/16 of the entire country. Carried by winds for thousands of years, it has stripped enormous desert areas, and covers mountains and river valleys in thick layers, 40 to 400 meters thick. Here it is still a terrible threat as a cause of more erosion. Solid matter in the Yellow River, for example, reached the incredible weight of 2,643 million tons per year (compares to a paltry 700,000 tons in the Seine). Chinese officials recognize forest cover is the best way to combat erosion.

By the end of 1956, some 20,000,000 hectares of forests had been delimited and divided by Russian inventory methods, surveyed by ground and air. Another 19,000,000 had been covered by aerial survey alone, said the Ministry of Forests. This left 38,000,000 to be surveyed.

Grazing in forests is now under control, forbidden in theory in some areas, but tolerated in many ways. Steps have been taken to control the scourge of fires, which have been very destructive. Lookouts, patrols, fire-fighting teams, access roads and propaganda are being used. Chemical means are used to control insects.

M. Messines points out the Chinese are excellent nursery workers and state forest farms have increased from 60 to more than 400 since the Kuomintang.

Top research institutes are in Shenyang, Peiping and Canton. Provincial research stations total 25. There are three forestry schools—at Harbin, Peiping and Nanking. Each is increasing in enrollment—each has around 1,500 students; will have 4,000 to 5,000. If facilities become available, it is expected that in all of China some 20,000 students, one-fifth women, eventually will be taking 5-year forestry.

In Dixie: Pulpwood Resurgence

How the pine forests of the South "came back" from virtual devastation to become the source of about 58% of the nation's pulp and paper production and 33% of the lumber output was told to members of the Canadian Forestry Assn. in Vancouver, B.C., recently by Frank Heyward Jr. He is director of mill public relations for the Gaylord Container Corp. div. of Crown Zellerbach Corp.

Thousands of small forest land owners, he said, hold the key to maintaining and expanding a sound forest economy in the Southern states.

Addressing the association's annual meeting, Mr. Heyward declared that more than half of the South's forest land is held by small operators whose average individual holdings are less than 100 acres. He stressed the importance of educating these people to a full appreciation of the value of properly-managed timberlands. As a step in that direction, some 100 pilot forests have been dedicated to service as guideposts for the small owner.

The growth of the Southern pulp industry—together with the new market it has created—has been the dominant reason for the region's resurgence in forest economy. According to Mr. Heyward—who in 1939 became the first forester and gen. mgr. of the newly established Southern Pulpwood Conservation Assn.—five factors favored the region: (1) the rapid growth of commercial trees; (2) natural pruning; (3) low cost of operation; (4) multiple use of wood, and (5) attractive stumpage prices.

"Because small trees are usable for pulpwood," the speaker declared, "the public quickly recognized the possibilities of growing pine trees as a crop." He recalled that the virgin timber of the South had been depleted by the middle 1920s, and that cut-over lands were constantly scourged by recurrent fires. (A 1920 survey revealed that on 90,000,000 acres the pine forests were a thing of the past.)

"On old fields originally in cultivation planted pines commonly attain pulpwood size in from 14 to 16 years. On undisturbed soil in the forest pulpwood may be grown in 18 to 20 years and sawlogs in 35 to 40 years.

"Currently, tree farmers are receiving from $4 to $5 per cord stumpage for pulpwood and from $30 to $40 per thousand Doyle rule for sawlogs. The price of bare forest land has skyrocketed from $5 to $40 per acre in those few localities where land is still on the market.

"Forest fire protection now extends to 85% of the total forested land, and the planting of trees has grown into a sizable business. During the past planting season some 750,000 seedlings were planted, the great majority by private landowners.

"Under the impact of a region-wide tree farm program, which is gaining momentum every year, there is no reason to believe that the South's forests will ever be depleted again."

No Such Thing as a Single "Super" Tree

Progress in forest genetics to be slow though research steps up, particularly in the South

BY DR. BRUCE J. ZOBEL

Associate Prof., Forest Genetics,
School of Forestry,
North Carolina State College

DR. ZOBEL—says South neglects hardwood studies

• The possibility for widespread use of genetics in forestry has only recently been recognized. During the past seven years progress has been very rapid, and in many instances the demand for practical application of genetics has surpassed the existing body of fundamental knowledge.

A number of research organizations are now engaged in both basic and applied phases of forest genetics. Work is being carried out by Federal and State Forest Services, and also private industry. The pulp and paper industry, especially in the South, has been a leader in sponsoring research. At present the Southern industries are sponsoring programs at the University of Florida, North Carolina State College, and Texas A & M College.

Although progress has been rapid beyond the highest hopes of most researchers, forest genetic investigations are still a long-term, slow undertaking. Some of the most important basic studies to date deal with ways to find short-cuts for speeding up both research and application. Methods to induce early seed production are being worked on. Already some juvenile-mature relationships, especially on wood properties, have been worked out, enabling prediction of the characters of a mature tree from the characters of the young tree or seedling.

Chief Efforts on Seed Source

Basic studies on pest resistance, physiology, and growth patterns are now underway. These serve as a basis for all applied research. For example, real success in determining the genetic control of wood specific gravity cannot be achieved until we understand why a tree stops producing springwood with its thin-walled tracheids and starts producing summerwood with its thicker-walled tracheids. In fact, most of the basic studies now needed, and already underway are not really forest genetics at all, but are basic to further progress in this field.

In the South, the greatest applied effort has been directed to improvement of seed source for planting. The initial work has largely centered on the selection of trees to be used in special seed-producing areas called seed orchards.

Seed orchards are established from the best-appearing trees to be found in the forests. These are then tested for their genetic superiority while the orchard grows. As soon as the genetic tests are completed, the genetically poor individuals are removed.

Many acres of seed orchards for the Southern yellow pines have been established within the past five years. Most of the larger companies have either established, or are establishing, sufficient acreage of seed orchards to supply seeds for their future planting needs. Enough slash and loblolly pine seed orchards have already been established to supply seed for production of about 300 million plantable seedlings annually, and the seed orchard acreage is expanding rapidly, both in industry and state programs.

Trees to be used as seed sources are variously called *selected* trees, *plus* trees, *super* trees, or *superior* trees. They are the very best available in our present forests. They may be selected for one or more outstanding characteristics. Superiority is judged on the basis of growth rate (both in height and in diameter), limb size, straightness of bole, rapidity of natural pruning, freedom from diseases and insects, and quality of wood. Such "super" trees are hard to find in the forest, but they do exist.

Genetic Tests Necessary

It should be stressed that super trees may appear to be excellent individuals, yet their real value lies in the degree to which they pass their outstanding characteristics to their offspring. This is why genetic tests are necessary to assess their value in the seed orchard. Unfortunately, as yet we know very little about heritability patterns in pines. Unquestionably, some characteristics are passed very strongly from parent to offspring, while others may be largely controlled by the environment in which the seed germinates and the tree grows.

No one is hunting for a "super tree, excellent in all characters, capable of growing under all conditions, with wood best suited for all products." Such trees do not exist. The forest geneticist hopes to find a tree best for the Piedmont, or for the Coastal Plain, best for North Carolina or Texas —a tree whose wood is best for kraft or for newsprint. But no one tree can be best for all purposes or situations. The forest geneticist is fully aware of this lack of universal suitability of any single strain; he therefore, is trying to tailor-make a tree most suitable to grow in one area, on one site, with wood best for one product.

Hardwood Study Important

One major shortcoming so far with the forest genetic studies in the South has been the emphasis on pine to the almost complete neglect of hardwoods. Since pine is generally considered the more valuable tree, with the greatest immediate potential, almost all industrial emphasis has been on them. But it would be short-sighted, indeed, if we failed to start studies on hardwoods, and start now. It is axiomatic that basic information must be built up in advance of application.

Farmer Brown Likes

Hot Logging

"The minute a stick of wood lays idle it costs me money," says Wally Brown, New York State farmer in Saratoga County. His farm of about 200 acres is some 6 miles north of the Mechanicville, N.Y. mill of West Virginia Pulp and Paper Co.

Some time ago, Farmer Brown bought some neglected timberland adjoining his farm. His approach to putting the land and the stand back on its feet has earned for him admiration from neighboring woodland farmers. So well has he done his job that just recently his land became a certified Tree Farm.

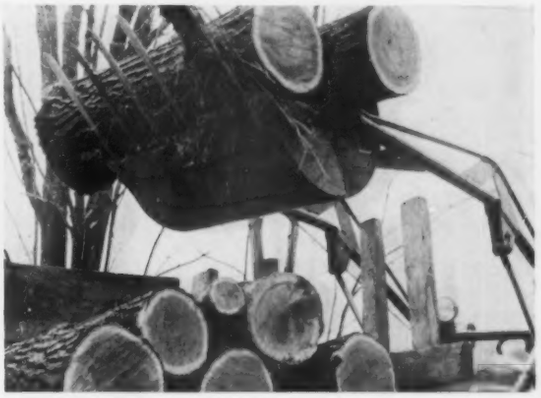
PULP & PAPER visited Farmer Brown with Stan Hamilton, woods manager for West Virginia Pulp and Paper Co., to see how this solo logger has come up with many innovations to make life easier.

"I LIKE TO SKID FULL TREES to where I can buck them all together and to save time I use this small set of tongs along with the cable hitch to skid two trees instead of one."

"I'M A TYPICALLY LAZY MAN. That's why I keep coming up with ideas to make work easier. This is a frame from an old truck. It makes an ideal pallet attached to the back of my tractor."

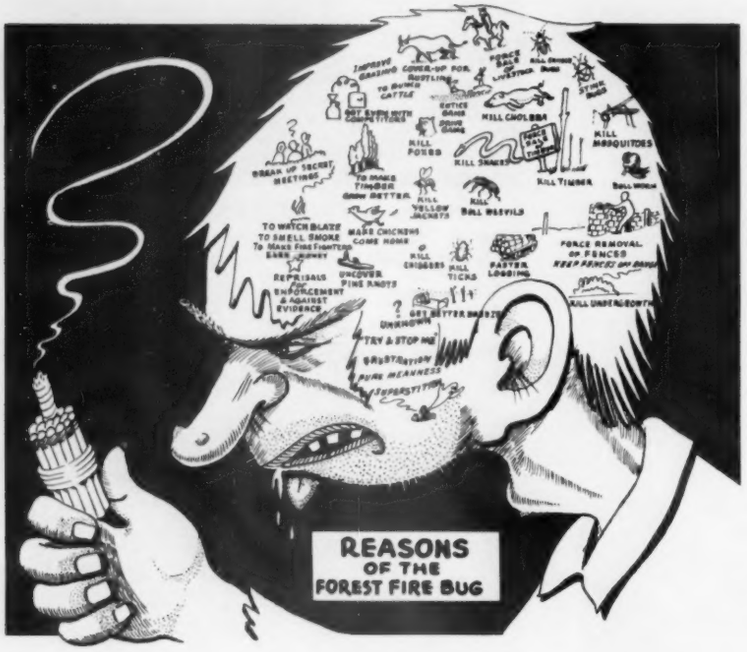
"FOR THE HEAVIER WOOD and when the load is high on the truck I use this scoop attachment to pick up the sticks. It's just about the right size and I find it really does a fine job."

"I'M CUTTING THIS LAND to improve it and taking out treetops left from veneer and sawmill loggers and also salvaging ice-damaged trees. I get help on how best to sell my timber from West Virginia."



"THERE GOES THE LAST LOAD and I'm not sorry. This solo logging is hard work. Now I'll just hop into my truck and hightail it down the road a piece to the mill. Nice talking to you."

What A Pulpwood Producer or Forester In South Should Know About a Firebug



BY JAMES E. MIXON
State Forester, State of Louisiana

The above cartoon by Roy H. Odom, program director, Louisiana Forestry Commission, tells what makes Fire Bugs tick—the ones who have started hundreds of fires burning many thousands of acres of timber in the Southern States. They are a serious menace to the forests of the South.

PULP & PAPER invited James E. Mixon, Louisiana's state forester, State of Louisiana, to comment on the subject of this cartoon—as a contribution to useful knowledge for pulpwood producers and foresters of the South who must deal with this serious problem.

The average citizen gets a gripe off his chest or a chip off his shoulder by such action as writing his congressman or signing a petition. The introverted ignoramus, however, who is responsible for 35% of the South's forest fires develops a prejudice and carries a grudge inside his heart until it becomes a festering infection. With rat-like cunning, he plans his campaign of firey retribution against objects of his disaffections, be they natural or supernatural.

The fire bug is one whom reason will seldom, if ever, reach.

In Louisiana the pulp and paper industry recognizes the social and economic ramifications of the fire bug problem. Careful studies are being made of his relationship to forest land use. Within the framework of good forestry practices, forest-use activities are being considered that will remove certain temptations from the fire bug's sphere of influence. "Getting to Know You" would be a proper theme song of this program.

Meanwhile local, state and federal enforcement officials are drawing the net tighter around the unreconstructible fire bug. District attorneys and the judiciary are making short shrift of open-and-shut arson cases.

Hit-and-run tactics, fast mobility, slow matches (matches tied around a length of cotton rope), delayed-action fires, leave many unsolved crimes. Lack of evidence is a problem.

The future? Evolution, education, enforcement, investigation. It is hoped that the institution of forest fire insurance with its elements of compensation and investigation will develop another area of reinforcement.

In short, in the words of Teddy Roosevelt the only language for certain mentally deranged arsonists is to "walk softly and carry a big stick."

First Study of Nutrients Required by Loblolly Pine

Under what conditions will it pay to fertilize trees?

That is the basic question prompting a study now beginning at North Carolina State College. The study is being carried on jointly by the college's School of Forestry and its Experiment Station and Allied Chemical Corporation.

Announcement of the research study was made by Dr. Richard J. Preston, dean, School of Forestry, and Dr. R. L. Lovvorn, director of research, Agricultural Experiment Station, North Carolina State College.

Other questions the study will seek to answer are: (1) What is the minimum amount of nutrients a tree can have in its foliage without being limited in growth by "hunger?" (2) Is it possible to tell how much and what analysis fertilizer a tree needs by checking the nutrient level of soil and foliage? (3) Can you trigger a growth response by applying the fertilizer these tests indicate the tree needs?

The current study is on loblolly pine, one of the most important trees of the South and the nation. Sample trees have been selected from plantations on good sites, sites of medium quality, and very poor sites in the Piedmont and Coastal Plain Provinces of North Carolina.

Stem analyses are being made in each plantation to find the pattern of past growth in relation to age. From 50 trees on each site, foliage will be collected during the dormant season and analyzed for nutrient content. Soil samples will be analyzed to determine the total and available levels in the soil on the different sites.

Subsequently, sample trees will be fertilized with different amounts of nitrogen, phosphorous, and potash, with and without lime, to determine the response of loblolly pine to these elements on the different qualities of site.

The study is believed to be the first of its kind to attempt diagnosing of the nutrient requirements of loblolly pine in a comprehensive way. The field work is being conducted by Emmett Thompson, a graduate of Oklahoma A & M College, who is now studying for a master's degree.

Project leader is Dr. T. E. Maki, head of the college's Department of Forest Management. Dr. Harvey J. Stangel, chief agronomist of the Nitrogen Division, Allied Chemical Corporation; Dr. Ralph McCracken, of the Soils Department, North Carolina State College; and Dr. David Mason, of the Department of Experimental Statistics, are serving as advisers.

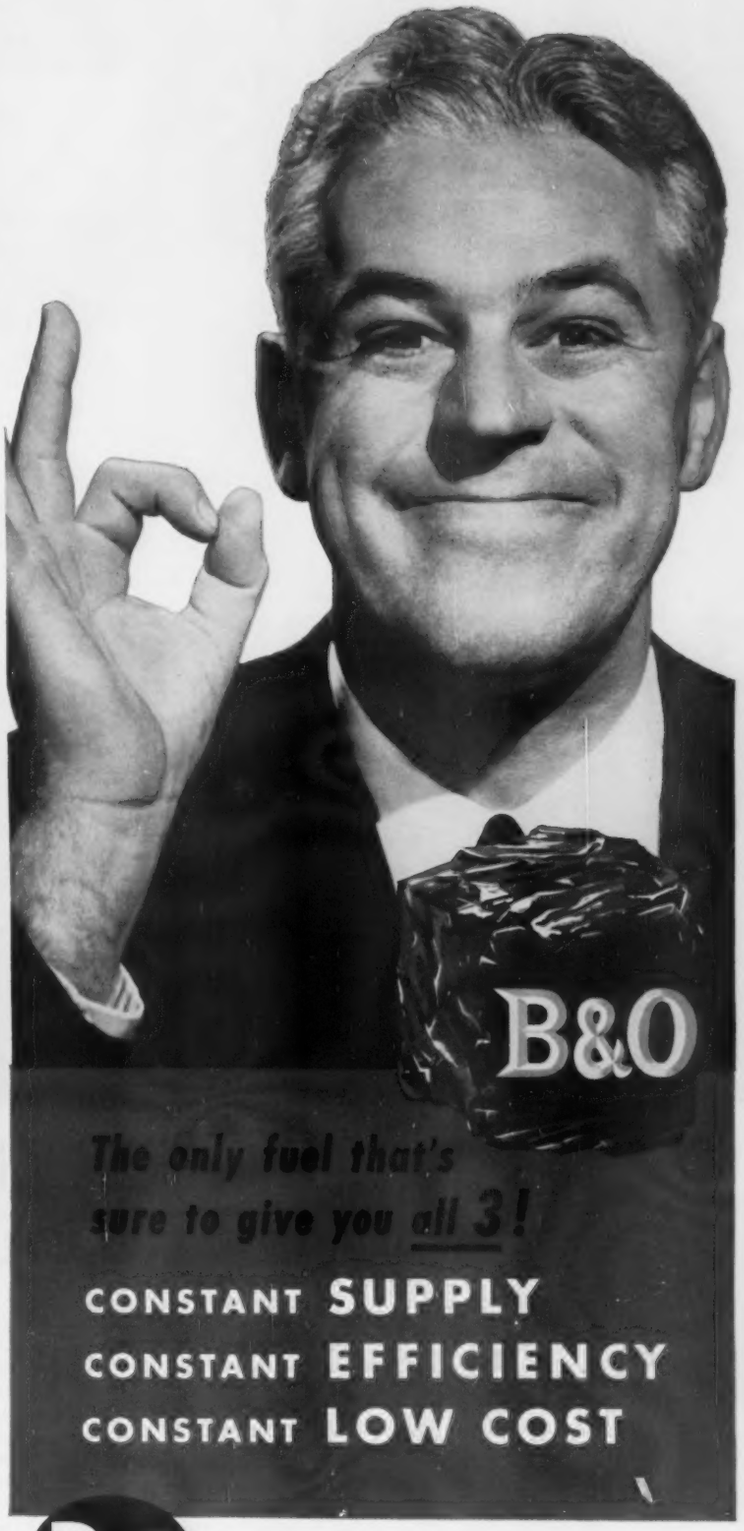
USFS Publications

Two publications dealing with research results in the field of papermaking have been issued by the U. S. Forest Products Laboratory, Madison, Wis.

No. 2124, "Pulping and Papermaking Experiments on Insignis Pine," and No. 2139, "The Groundwood Pulping of Balsam Fir and Jack Pine."

Georgia-Pacific Corp.'s

. . . contribution to the Oregon Centennial Exposition at Portland is this 286-ft. king of the tall timber. The 400-year-old Douglas fir was felled (no simple task) and hauled to its destination through the cooperation of G-P, International Harvester and the Southern Pacific Ry. From June through September a 40-ft. butt-cut log from the Oregon giant is on display as the "centerpiece" of the Centennial's logging exhibit. The tree was located on the Georgia-Pacific timber limits near Sitkum.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Ten-second quiz for people who buy, operate or maintain electrical adjustable speed drives

YES	NO	
☐	☐	Adjustable speed drives should be simple to install, operate, and should require little or no maintenance.
☐	☐	Adjustable speed drives should offer a wide range with either constant torque or constant hp, and should offer smooth acceleration and deceleration.
☐	☐	Adjustable speed drives should offer high operating efficiency . . . and be adaptable to a wide range of motor sizes.
☐	☐	Adjustable speed drives should provide the required flexibility and inherent reliability for any type of application . . . intermittent or continuous.

If you have answered "yes" to the above questions, then you will be very much interested in obtaining complete information about the *all-new, static-powered* Westinghouse Adjustable Voltage Reactifier drive . . . (Type AVR). This new drive not only meets all of the above requirements, but also gives you many other advantages to perform a better job at lower cost. Ask your Westinghouse sales engineer to show you exactly where and how this new drive can benefit you. Or, write to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

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Strictly Personal

Northeast

LEONARD J. DOYLE, vice pres. of Union Bag-Camp Paper Corp., New York, N. Y., has been named an advisor to the director of the Forest Products div., Business & Defense Services Adm., United States Dept. of Commerce. . . . STUART W. MCLAUGHLIN, comptroller for West Virginia Pulp & Paper Co., is reelected treas. of the Controllers Institute of America. He has held the post since 1954.

CLARENCE KINGSTON has been named paper mill supt. of the Potsdam, N. Y. mill of Nekoosa-Edwards Paper Co. He has been staff asst. to the resident mgr. since May 1958 and had previously held various production department assignments at Hammermill Paper Co., Erie, Pa. It was also reported that L. G. MCGOWAN becomes asst. supt. at Potsdam. He joined the Potsdam staff in 1955, prior to which he was a tour foreman for Sorg Paper Co.

Nopco Chemical Co. has acquired Jacques Wolf & Co. of Clifton, N. J., and will operate the firm as a wholly owned subsidiary. The present staff and sales force is retained. G. DANIEL DAVIS, Nopco executive vice pres., becomes president of Jacques Wolf. . . . ROBERT M. HATFIELD, formerly vice pres. in charge of manufacturing, has been named vice pres. and gen. sales mgr. in charge of domestic sales for Combustion Engineering Inc.

THOMAS W. ANDREWS JR. is new mill mgr. of Container Corp. of America's paperboard plant at Philadelphia. He joined the company at Philadelphia in 1946 and has held the position of tour boss, supt. and asst. mill mgr. . . . JOHN T. PENINGER becomes asst. treas. of International Paper Co. He joined the firm's Woodlands div. in Bastrop, La., 27 years ago as an accounting clerk. Prior to his recent appointment he was asst. to the treas. . . . RICHARD E. BOLLER JR. is gen. sales mgr. of Alloy Steel Products Co., Linden, N. J., a newly created position He was previously northeast regional sales mgr.

ERIC W. ESSEN becomes sales coordinator of Jamesbury Corp., Worcester, Mass. manufacturer of ball valves and hydraulic devices. . . . KIRK P. FERGUSON has been named mgr. of the New York, N. Y. district office of E. I. du Pont de Nemours & Co.'s Dyes & Chemicals div. He succeeds SIDNEY M. CONN, who retired June 30. . . . JOHN E. HIMMELRICH becomes eastern regional sales mgr. for the Protective Coatings div. of Pittsburgh Coke & Chemical Co. He succeeds HOWARD F. TRUSLER JR., who becomes sales mgr. at Houston, Texas.

EDWARD F. LANDGRAFF has joined the sales force of the Arthur Schroeder Paper Co. Inc. He had been with Pagel, Horton & Co. for 14 years as mgr., paper dept.

HARRY PRESTON of the Golden Fleece Tissue Mills Inc., was recently honored for his industry wide leadership by New York's paper merchants at their annual United Jewish Appeal dinner. . . . AL REYNOLDS, director of printing research for S. D. Warren, has been named "Boss of the Year" by the Portland (Maine) Chapter of the National Secretaries Assn.

CHARLES S. ADAMS steps into new post of asst. mgr. of sales of The Sandy Hill Iron and Brass Works. He's an m.e. grad from Worcester Tech, has a background of 25 years in paper mill machinery field. . . . JAMES E. KELLEY is now asst. mgr. of sales for Allied Chemical's General Chemical Division.

STEPHEN G. STAPLEY has been named plant mgr. of the Chemical Fine Paper and Board Div., Standard Packaging Corp., Holyoke, Mass. . . . RICHARD W. MALEY steps up as asst. plant manager

Renegar in New Post for Container Corp.

GLEN T. RENEGAR is the new paper mill production mgr. for Container Corp. of America's Eastern div. He is responsible for the development and improvement of organization, methods, equipment, products and costs at company plants in Chattanooga, Tenn., and Philadelphia. As in the past, he continues to be available for special assignments in other company mills and foreign subsidiaries.

Mr. Renegar joined Container Corp. in 1931 at Philadelphia, where he served successively as chemist, chief technician and asst. supt. For the past seven years he has been mill mgr.

Frank J. Venn Joins Woodpulp, Inc.

Mr. Venn, a former chairman of the traffic committee of the American Wood Pulp Importers Assn., will now serve in a sales-traffic capacity at Woodpulp, Inc.

Named Huyck Chairman

RANDOLPH C. HARRISON has been elected chairman of the board of directors of F. C. Huyck & Sons, manufacturer of papermakers' felts. He has been a member of the board since 1956 and was formerly a senior vice pres. of the Hanover Bank, New York, N. Y.

Frederick S. Leinbach, President, Riegel Paper Corp.

Mr. Leinbach, executive vice pres. since 1957, has been appointed president of Riegel Paper Corp. He has been with the company since 1934 when he joined as chemical engineer for product development at the Milford, N.J. mill. JOHN L. RIEGEL continues as chairman.

Conley ..... Cryan

Conley Retires at Fraser

JAMES G. CONLEY, gen. sales mgr. for Fraser Paper Ltd., has retired after 28 years with the firm and 37 years in the industry. He is remaining as a consultant and is being succeeded by J. R. CRYAN, formerly sales mgr. Mr. Cryan joined the Fraser technical dept. in 1930, moved to sales in New York in 1935 and became sales mgr. in 1950.

Strictly Personal

and GARNER A. TOWNE moves to asst. division mgr. . . . At Standard's Brewer, Maine mill, ROBERT A. BANCROFT has been promoted to finishing supt.

JOHN WHITE THOMAS, vice president, treasurer and comptroller, Keyes Fibre Co., died May 6 in Waterville, Maine. CARROLL W. ABBOTT succeeds him as treasurer and WALTER H. RANDALL has been elected a director. . . . GUSTAV NORLAND has been promoted to general foreman and GEORGE W. LEWIS to foreman in the pulp mill at Hammermill Paper Co., Erie, Pa.

WAYNE A. BROWN asst. vice president and manager of Crown Zellerbach Corp.'s eastern division in New York died after a heart attack at White Sulphur Springs, West Va. He had been with Crown Z. and predecessor firms for 33 years.—Maurice R. Castagne.

Welliver ..... Morganstern

Join Minerals & Chemicals Corp. of America

. . . W. E. "BILL" WELLIVER a b.s. from Pennsylvania State U. and an m.s. from the U. of Illinois in clay technology and mineralogy, was in coating research and manufacturing with New York and Pennsylvania Co. He will serve M&C paper mills in the Midwest from headquarters in Appleton, Wis.
THOMAS C. MORGANSTERN a b.s. and MBA from the Babson Institute of Business Administration, was previously with A. E. Staley Mfg. Co. as a field representative. He will service M&C customers in New England from Wellesley Hills, Mass.

Midwest

WILLIAM A. MOGGIO has been named production mgr. for the Lake States Yeast div. of Rhinelander Paper Co., Rhinelander, Wis. At the same time, JOHN GREENE became technical supt. of the yeast dept. . . . JAMES O. HARRIS and C. WAYNE SMITH have been appointed vice presidents of Inland Container Corp., Indianapolis, Ind. Mr. Harris who has been active at Inland in purchasing and quality control, will continue his present assignment in the Mill div.—including roll stock procurement, quality control, sales and planning. Mr. Smith will continue to headquarter at Rome, Ga., in charge of Inland mill programs and operations in that area.

RICHARD L. BETTS has assumed the newly created position of director of contractural relations for Champion Paper & Fibre Co., Hamilton, O. He administers the firm's performance under assigned supply contract agreements. With Champion since 1937, he was at one time divisional production mgr. at Pasadena, Texas. In 1958 he returned to Hamilton as asst. director of production. . . . HUGH D. BURNIE succeeds the late MIKE NILLES as Coating dept. supt. at the Wisconsin Rapids (Wis.) div. of Consolidated Water Power & Paper Co. Since joining the company he has served as asst. coating supt., mill chemist and project engineer in the Research & Development dept.

JOHN S. BUCHANAN is new technical asst. to the kraft mill supt. at the Nekoosa, Wis. plant of Nekoosa-Edwards Paper Co. He has been a Nekoosa-Edwards research chemical engineer since 1956. . . . GEORGE F. BURLEY has been reappointed sales vice pres. of Crane Co., Chicago. He joined the firm as vice pres. in 1957. At the same time, DARRELL R. NORDWALL became gen. mgr. of branch sales; CHARLES H. LOVELACE gen. mgr. of engineering sales, and R. W. LINDSAY gen. mgr. of wholesaler sales. Mr. Nordwall was at one time mgr. of the West Coast district office and in 1958 was promoted to the general headquarters; Mr. Lovelace joined Crane in 1938 and for the past three years has been in charge of industrial sales and merchandising, and Mr. Lindsay—with the firm since 1947—moves to his new assignment from New York, N. Y., where he was mgr. of the eastern sales district.

WILLIAM W. WOODBRIDGE has retired as Midwestern district sales mgr. after completing 45 years of service with Hammermill Paper Co., Erie, Pa. For the past 10 years he headed the Chicago sales office. He is being succeeded by EUGENE E. BLACKWELL, formerly asst. district sales mgr. in the Midwest. . . . ROBERT D. RUSCH, 51, mgr. of Chase Bag Co.'s paper mill in Chagrin Falls, O., died recently at his home.

W. H. SWANSON, Kimberly-Clark Corp.'s vice pres. for research and development, becomes vice pres. in charge of corporate product planning and the commercial development of new products. Appointed director of research for the Neenah, Wis. firm is JAMES J. SHIPMAN. He has been concerned with corporate research and development since 1945. . . . G. A. JACKSON has been named director of purchases for Champion Paper & Fibre Co., Hamilton, O. He succeeds LEWIS K. JOHNSTONE, recently named director of a newly created pulp marketing dept. Mr. Jackson joined the Texas div. in Pasadena in 1949 as an industrial engineer.

More than 200 TAPPI members attend-

Burdsall ..... Newman

Crystal Promotes Two

JOHN E. BURDSALL has been promoted from gen. supt. to vice pres. in charge of manufacturing at Crystal Tissue Co., Middletown, O. H. H. HARRISON, who has served many years in this capacity, will continue as a vice pres. and consultant to management. In another move, LOWELL W. NEWMAN becomes plant engineer. He was formerly supt. of power. Mr. Burdsall came to Crystal Tissue in 1933 as a member of the technical staff. For several months in 1945-46 he served as a chemical sales representative for American Cyanamid Co. but returned to Crystal in 1947 as asst. supt. He was named gen. supt. in 1955. Mr. Burdsall is a former chairman of both the Ohio Section of TAPPI and the Miami Valley div. of the Superintendents Assn.
Mr. Newman joined the Middletown company in 1936 as operating engineer. A year later he became asst. chief engineer and in 1946 chief engineer and supt. of power.

Michigan Supts., TAPPI Elect 1959-60 Officers

At a recent joint meeting in Kalamazoo, the Michigan div. of the Superintendents Assn. and the Kalamazoo Valley Section of TAPPI announced their newly-elected officers:

For the Superintendents Assn.—EUGENE BAKER (National Gypsum Co.), chairman; L. B. OWENS (Allied Paper Corp.), first vice chairman; LESLIE PECK (Mac Sim Bar Paper Co.), second vice chairman, and OLIN W. CALLIGHAN (Minerals & Chemicals Corp. of America), secretary-treasurer.

For TAPPI—W. O. KROESCHELL (Michigan Carton Co.), chairman; P. DEAN GRAHAM (E. I. DuPont de Nemours & Co. Inc.), vice chairman; W. L. KITE (Lee Paper Co.), secretary; JOSEPH CHADDERDON (KVP Co.), treasurer, and DR. R. M. LEAVY (Allied Paper Corp.) executive board.

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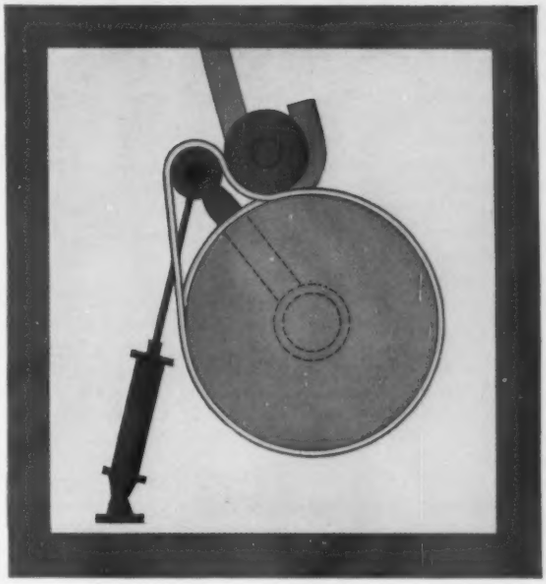

Beloit reel spool starter

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Beloit Reel Spool Starter eliminates needless paper loss

This low-cost item can pay for itself in weeks! Mills report that with the addition of a Beloit spool starter to an existing reel they save hundreds of pounds of paper daily. With this device the spool is at drum speed before contacting the reel drum. No bounce! No chatter!

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Strictly Personal

ing the recent annual Lake States Section engineering conference in Appleton, Wis., were treated to "more than 200 years of papermaking experience". They toured the plants of the host firms: Appleton Machine Co. (75 years); Appleton Woolen Mills (78 years), and Valley Iron Works Co. (59 years). The technical program was led by WALTER J. BUBLITZ, Kimberly-Clark Corp. chemist who is 1958-59 section chairman. Speakers included TANY AGRONIN, president of Appleton Machine; L. R. BARLAMENT, manufacturing vice pres. of Appleton Woolen, and GEORGE REYNOLDS, Valley Iron Works chief engineer.

EDWARD A. JOHNSTON, treasurer of Minnesota & Ontario Paper Co., died recently in Minneapolis at the age of 57. WILLIAM R. BOFENKAMP, sales mgr. of the St. Paul, Minn. corrugated box plant of Owens-Illinois Glass Co.'s Paper Products div., has been made gen. plant mgr. He will serve as gen. mgr. of a new plant now under construction in Valley Industrial Park near Minneapolis. This facility will replace the St. Paul operation. . . .

NICHOLAS C. NELSON becomes asst. director of export sales for Champion Paper & Fibre Co., Hamilton, O. . . . WILLIAM J. WHITE, formerly supervisor of process research, becomes mgr. of technical sales service for Mosinee Paper Mills Co., Mosinee, Wis.

GEORGE R. ZALOUDEK, staff engineer for the Mill div. of Owens-Illinois Glass Co., is named division engineer. He succeeds GLENN RALSTON. Mr. Zaloudek was at one time plant engineer at the Valdosta, Ga. paper mill and was transferred to the Toledo, O. headquarters last year.

The Gardner div. of Diamond Gardner Corp. has consolidated its maintenance,

CB&I Executive Retires

H. C. BROWN, veteran executive of Chicago Bridge & Iron Co., has retired following more than 43 years' service. He remains a member of the board of directors.

A graduate of the Univ. of Illinois, Mr. Brown joined the firm's sales dept. in 1916. In 1921 he was transferred to New York, N. Y., where he remained until his retirement. He was elected a vice pres. in 1942 and has served as a director many years.

Scott Wisconsin Mills Honored for Safety

. . . at a banquet in Marinette. The gathering, usually held at the Chester, Pa. headquarters, was staged this year in Wisconsin "in recognition of the outstanding safety records of Scott mills in that state."

The personnel of these subsidiary plants —Falls Paper & Power Co. at Oconto Falls and Marinette Paper Co., Marinette—have accumulated a total of 6,412,500 manhours without a lost-time injury. Sharing the honors at the "Banquet of Champions" was the Madison, Maine plant, which completed 1958 without a lost-time accident.

On hand to present the awards (above) was Paul C. Baldwin, vice pres. in charge of production, research and development. Representing the mills honored were (left) Andrew Demkowitz (Madison, Maine); Dorothy White (Falls Paper & Power), and (extreme right) Roy Provancher (Marinette Paper).

Also singled out for their outstanding safety records during 1958 were Scott mills at Chester, Pa.; Everett, Wash.; Fort Edward, N. Y., and Mobile, Ala.

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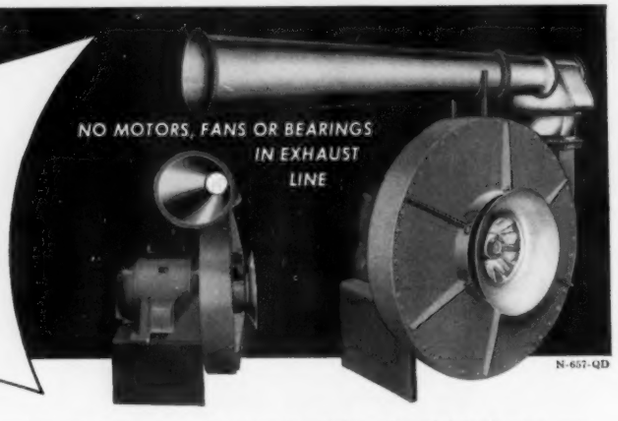

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Time and maintenance savings usually pay for Quickdraft high-pressure exhausters in 6 to 18 months on materials handling jobs. Because material does not pass through blower, maintenance is negligible. Downtime for cleaning and replacing fans, motors and bearings is eliminated. Quickdraft units are also ideal for exhausting paint spray, abrasives, corrosive gases, noxious fumes and high temperatures. For Quickdraft engineering data on materials handling, industrial exhausting, heating plant venting, write today!

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Ellis to Represent S&H in Wisconsin, Minnesota

HOWARD E. ELLIS, formerly gen. supt. for Fox Paper Co. at Lockland, O., has joined the sales staff of Shuler & Benninghofen, Hamilton. He will serve the paper industry in Wisconsin and Minnesota.

ADRIAN BARBER, Wisconsin-Minnesota representative since 1958, will continue in sales in the Michigan territory.

power and engineering departments under the direction of DELBERT C. MEYER, director of engineering since 1957. RICHARD J. MINGES becomes chief project engineer, assuming most of the staff responsibilities formerly supervised by Mr. Meyer.

ALAN G. RICHARDS is vice pres. of Bjorksten Research Laboratories, Madison, Wis. He will continue his activities in the field of client relations while assuming new management duties. Mr. Richards was formerly located at the Bjorksten Washington, D. C. offices. . . . THOMAS N. CARTER, 56, special design engineer with Champion Paper & Fibre Co., Hamilton, O., died in May.—Don W. Zeigler.

Wintgens to Retire

HENRY G. WINTGENS, executive vice pres. of Charmin Paper Products Co., Green Bay, Wis., will retire August 1. An executive of the firm for most of his career, his retirement completes 45 years of service with the company.

MARTIN J. AUCHTER continues to head Green Bay and Little Rapids, Wis., and at Cheboygan, Mich. In charge of mills at Green Bay and Little Rapids is ROBERT E. KISSEL.

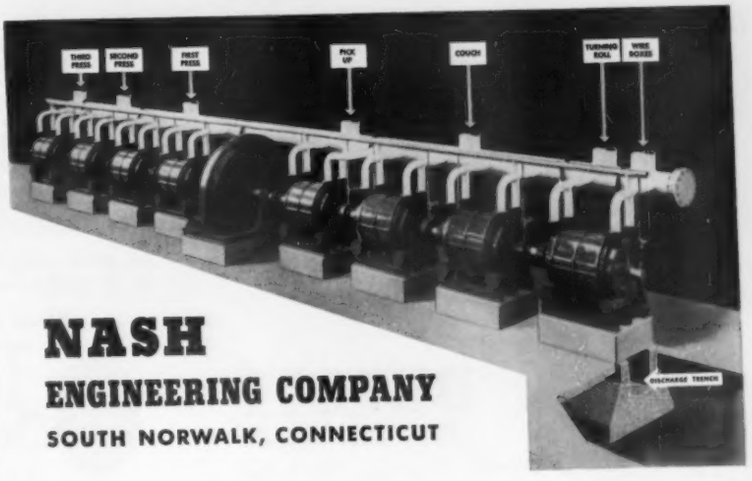
Assuming responsibility for all nontechnical administrative matters is PETER M. CHIUMINATTO, who joined the company in 1924 and has been primarily associated with corporate management.

Mr. Wintgens became associated with Charmin in 1914, when it was known as John Hoberg Paper Co. He later joined the sales force and in 1926 was placed in charge of the Chicago sales office. In 1927 he became asst. sales mgr. and in 1930 vice pres. in charge of sales. He was named vice pres. and asst. gen. mgr. in 1939. With the acquisition of Charmin by Procter & Gamble Co. in 1957, Mr. Wintgens became executive vice pres. of Charmin Paper Products.

This New Nash Vacuum Pump Offers Four Separate Suctions and Vacuums Simultaneously

The Nash 5308-A has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce a variety of capacities and vacuums.

Picture below shows simple drive possible and flexibility of piping permitting capacities to exactly fit requirements of different sections of the paper machine.



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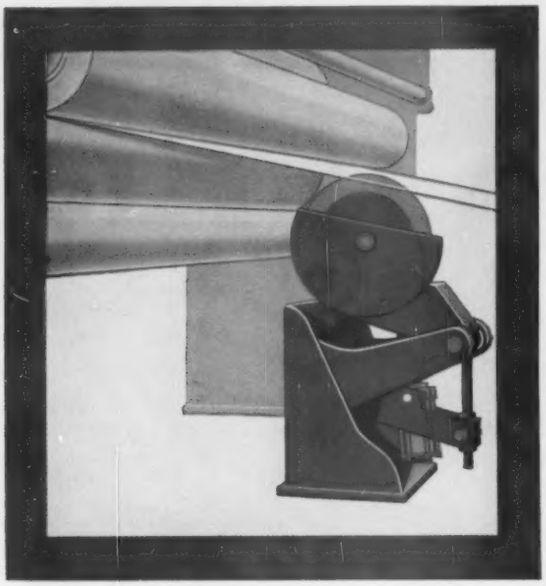
ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



Beloit center slitter, located between calender and reel

• Winder corrugations a converting problem?
• Losing crepe and bulk on your rewinder?

Beloit Reel Slitting Systems can eliminate tissue rewinder problems

Savings in basis weight alone can cover your investment in a few months. The Beloit integrated reel slitting system separates tissue sheets into converting widths at the reel. Loosely wound parent rolls—with valuable bulk and crepe preserved—can be delivered directly from the reel to the converting department.

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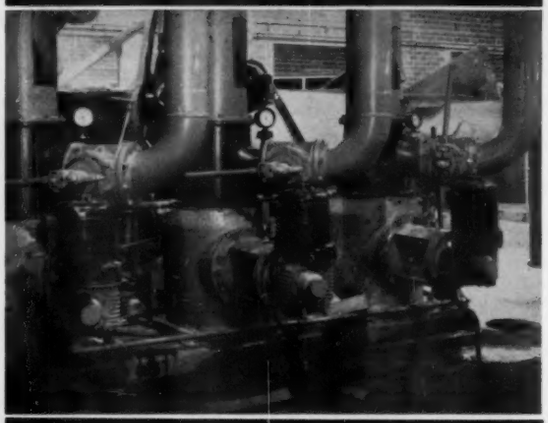
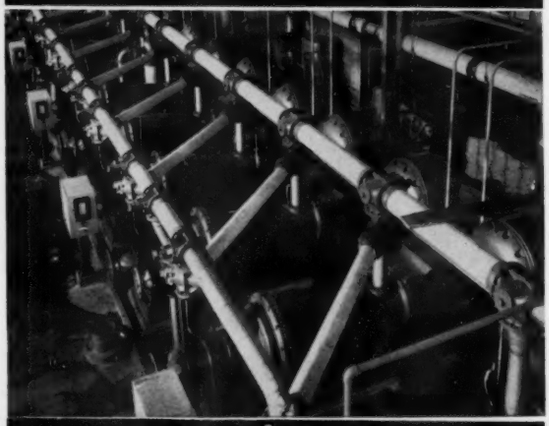


...Straight-Way...



..or Multi-Port..

the finest in the field!

The effortless operation . . . the dead-tight shut-off . . . the freedom from constant maintenance—these features are yours with DeZurik Valves in straight-way or multi-port styles!

And you'll find they last longer, too!

Judged by any standard, DeZurik Valves give you more of what you want . . . more of what you need!

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SARTELL, MINNESOTA

Diamond Gardner Reports Three Major Promotions

In recent executive changes at Diamond Gardner Corp., Middletown, O., WILLIAM H. AIKEN becomes director of research and development; RICHARD D. WILLIAMS director of industrial and public relations, and THOMAS G. ZENTNER director of research and development for the Gardner div.

Mr. Aiken, holder of a ph.d. from the Institute of Paper Chemistry, joined Gardner in 1952 as technical director. In 1958 he was made director of research and development for paperboard.

Mr. Williams came to Gardner in 1949 as a personnel clerk and later held several administrative positions in industrial relations. He became director of industrial relations (Gardner div.) in 1957.

Mr. Zentner, also a ph. d. graduate of the Institute, became a mill technician in 1952, technical supervisor at the Lockland carton plant in 1953 and asst. technical director of carton plant development in 1956.

Southern

ROBERT I. COE has been named purchasing agent for Mead Corp.'s Kingsport, Tenn. div. He succeeds W. R. GILMER, who served the post for 38 years until his death May 3. Mr. Coe became asst. purchasing agent in 1954. . . . Marshall & Williams Equipment Co., Greenville, S. C., has been appointed Appleton Machine Co.'s southeastern sales representative. M&W will cover a seven-state region (South Carolina, North Carolina, Georgia, Alabama, Tennessee, Mississippi and Virginia) in the sale of supercalenders, winders, deckers, cylinder moulds and air guides.

JOHN L. SIGLER becomes southern regional sales mgr. for John W. Bolton & Sons Inc. and the Emerson Mfg. Co. div., both of Lawrence, Mass. He joined the organization in 1956 and has served as New England sales engineer for stock preparation equipment and machine knives. He was previously Boston representative for the Industrial Coated Fabrics div. of Minnesota Mining & Mfg. Co. . . . SAMUEL R. PARRY, formerly vice pres. and gen. mgr. of the Chattanooga, Tenn. div. of Combustion Engineering Inc., becomes vice pres. in charge of manufacturing for the entire company. He is succeeded at Chattanooga by HARRY J. BOSWELL, former asst. gen. mgr. Mr. Parry joined Combustion Engineering in 1923.

Albemarle Paper Mfg. Co., Richmond, Va., has increased its board of directors from 11 to 13 members and elected three new directors (one to fill an existing vacancy): CHARLES H. ROBERTSON, a vice pres. of Albemarle; H. WATKINS ELLERSON JR., a vice pres. of the Halifax Paper

Scribner ..... Earle

In New Posts for Continental Can Co.

RUSSELL D. SCRIBNER, formerly mgr. of the Elkhart, Ind. plant, has been named central region gen mgr. for the Boxboard & Folding Carton div. of Continental Can Co. He is in charge of all sales and production activities for plants and branch offices in Michigan, Ohio, Indiana, Minnesota, Missouri, Texas and Pennsylvania. Mr. Scribner succeeds CHARLES A. COLBERT, who has resigned to form his own business. Replacing Mr. Scribner at Elkhart is GEORGE OECHSLE, formerly asst. plant mgr.

In another executive promotion, T. W. EARLE of Savannah, Ga., becomes a vice pres. of Continental Can. He is gen. mgr. of the Woodland div.

Strictly Personal

Co. div. at Roanoke Rapids, N. C., and S. Buford Scott Jr. of a Richmond investment securities firm. . . . Donald Black has been named Houston, Texas district mgr. for Fischer & Porter Co. He was formerly a field engineer in Detroit. . . . Leroy A. Paris has been appointed service mgr. for Container Corp. of America's Dallas-Ft. Worth, Texas folding carton plant. He joined the firm in 1940 and prior to his present appointment was gen. mgr. of Union Grafica of Caracas, Venezuela, a Latin American affiliate.—William F. Diehl.

Elis Olsson Dies

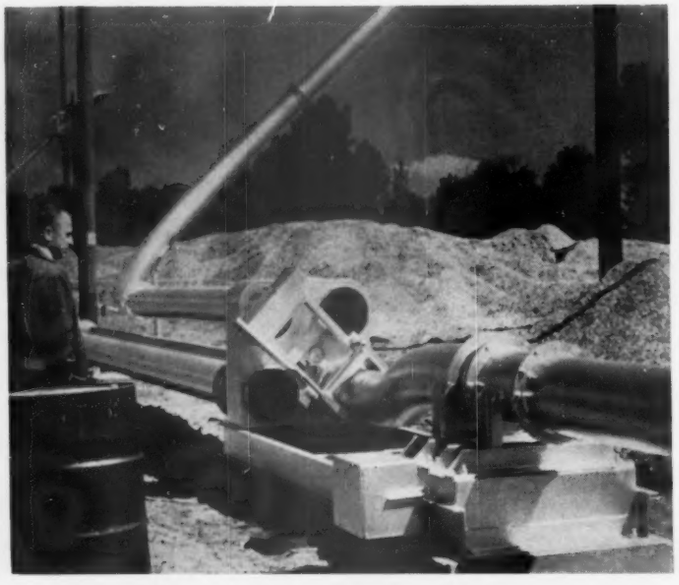
One of the nation's pioneer kraft manufacturers and chairman of Chesapeake Corp. of Virginia, Elis Olsson, died in May at the age of 79.

Mr. Olsson, a native of Sweden, established the present management of the firm in 1918, taking over operations of the old Chesapeake Pulp & Paper Co. Prior to 1918 he had served as supt. of Brompton Pulp & Paper Co. Ltd., East Angus, Que., first kraft mill in the Western Hemisphere. Mr. Olsson was president and gen. mgr. of Chesapeake Corp. from 1930 to 1945.

A son, Sture Gordon Olsson, is the present president of the West Point, Va. company.

George L. Witham of Orr Felt Dies

George L. Witham, since 1945 Orr Felt & Blanket Co.'s representative in the south central states, died in May.



RADER SYSTEMS PIPE PULP CHIPS LIKE WATER

Rader diversion valves make chip flow as flexible as water lines. These valves can be operated manually (see illustration) or automatically by remote control. Rader valves can be interlocked with bin level indicators or any other device to actuate control circuits, making delivery of chips to digesters or bins fast and sure with a minimum of labor. In one west coast paper mill, one Rader system, through the use of valves, delivers chips to six different destinations. The flexibility of Rader systems, piping underground or over obstacles, combined with automatic controls provides the most efficient method of conveying pulp chips, bark or any other type of wood particles.

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Canada

Robert M. Fowler, president of the Canadian Pulp & Paper Assn., headed a group of industry executives from eastern Canada on a recent visit to Vancouver, B. C. The occasion: the annual meeting of the CPPA executive committee. Among those who made the trip were: W. H. Aird, sales vice pres. of Howard Smith Paper Mills Ltd.; G. C. Brown, paper division mgr. for Price Bros. & Co., Ltd.; R. F. Caldwell, president of E. B. Eddy Co.; H. Roy Crabtree, board chairman of Howard Smith Paper Mills; T. F. Flahiff, asst. to the president of Ontario Paper Co. Ltd.; C. J. Warwick Fox, president and gen. mgr. for Great Lakes Paper Co. Ltd.; T. Bruce Fallows, sales vice pres. for Great Lakes Paper; Vernon E. Johnson, president of Canadian International Paper Co. and CPPA chairman; J. H. M. Jones, president of Bowaters Mersey Paper Co. Ltd.; T. R. Moore,

Weldon ..... Irwin

Irwin Succeeds Weldon as Bathurst President

R. L. Weldon has retired as president of Bathurst Power & Paper Co. Ltd., a position he held 23 years. Mr. Weldon has been elected to the newly created office of chairman of the board.

Succeeding him as president is R. A. Irwin, who joined the company in 1957 as a vice pres. He was named to the board of directors in 1958. Prior to his association with Bathurst, he was president of Eddy Paper Co. Ltd. and of Somerville Ltd.

Holland Joins Nova Scotia Pulp Ltd.

WALTER W. HOLLAND is the new vice president and general manager of the Stora Kopparberg market pulp mill using sodium base in Nova Scotia. He has been vice president-pulp of B. C. Forest Products Ltd. at Crofton, B. C. since 1955. His more than 25 years in the industry also include mill manager at Oxford Paper Co.'s Rumford, Maine mill and various posts in Canadian mills including general supt. at Baie Comeau, Que.

president of Anglo-Newfoundland Development Co. Ltd.; W. M. PALM, president and gen. mgr. of Hinde & Dauch Paper Co. of Canada Ltd., and P. H. O'REILLY, CPPA sec.

K. F. BARTON, a 22-year veteran with the firm, has succeeded OSWALD CRAWFORD as traffic mgr. of Powell River Co. Ltd. Mr. Crawford, who joined the company in 1952, is a past president of the Canadian Industrial Traffic League. He continues in traffic work as a consultant. . . . W. A. BAIN, for some 30 years in the engineering department of Alaska Pine & Cellulose Ltd. and its predecessor company, has relinquished his duties as mgr. of the Cellulose div. He continues to serve the firm in a consulting capacity.

C. E. ALLEN has succeeded S. HALL as chief engineer at the Windsor Mills, Que. plant of Canada Paper Co. . . . T. G. RUST is new gen. supt. of Quebec North Shore Paper Co. at Baie Comeau, Que. He was formerly asst. gen. supt. . . . WALTER KOERNER, chairman of the board of Alaska Pine & Cellulose Ltd., was a principal speaker at a recent industrial and trade conference in British Columbia. His subject: "Foreign Capital in Our Economy". . . . J. A. BECKOW, formerly with H. A. Simons Ltd., Vancouver, B. C. engineering firm, has formed a new company serving the pulp and paper industry in British Columbia

Harrison .... Jones

Stevens ..... Dunton

Realignment at Dominion Engineering Co.

The industrial division of Dominion Engineering Co., Ltd. has been divided into two departments. J. H. HARRISON has been named sales mgr. and H. J. JONES, chief engineer of the rolling mill dept. In the press, mining and rubber dept. R. W. STEVENS has been appointed sales mgr. and R. M. DUNTON, chief engineer.

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The Ridge Tool Company
Elyria, Ohio, U.S.A.
THREADED PIPE... It's Tight... It's Best... Costs Less!

and Alberta. The organization will specialize in the piping and process equipment field.

T. R. MOORE, has been elected board chairman of Gaspesia Sulphite Co. Ltd., Chandler, Que. At the same time, E. L. NEAL, formerly vice pres. and gen. mgr., became president. Mr. Moore is president of Anglo-Newfoundland Development Co. Ltd. . . . HAROLD S. FOLEY, chairman of the board of Powell River Co. Ltd., was a principal speaker at the recent Banff, Alta. convention of the Investment Dealers Assn. of Canada. . . .

DOUGLAS JONES, engineer-sec. of CPPA's Technical Section, Montreal, attended the recent annual spring meeting of the section's western branch at Harrison Hot Springs, B. C.

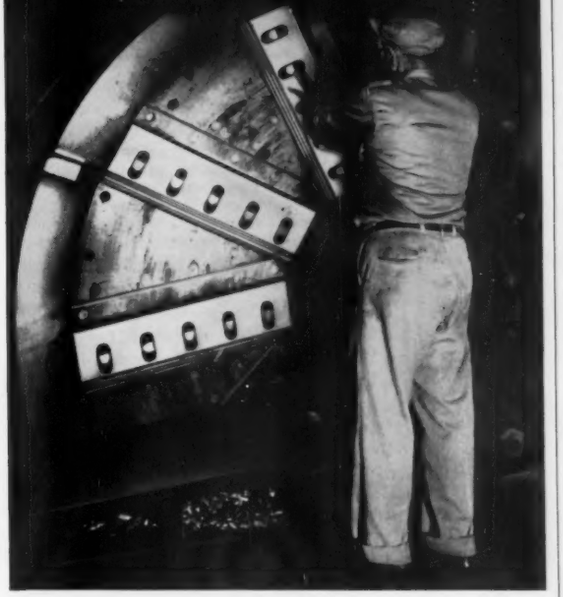
HAL HOFFMAN of the Newsprint Information Committee made his first trip to British Columbia in May. He visited two mills in the big tree country of Vancouver Is.—Elk Falls Co. Ltd. and MacMillan & Bloedel Ltd.—and the plant of Powell River Co. Ltd. at Powell River. . . . WALTER T. PARRY has joined National Starch & Chemical Co. (Canada) Ltd. as a technical sales representative for specialty starches and resins for the paper industry. . . . THOMAS E. MOFFITT was recently elected president of Hooker Chemicals Ltd., North Vancouver, B. C. HORACE W. HOOKER and GEORGE E. GENTES became vice presidents. ANSLEY WILCOX II is sec., EDWARD W. MATHIAS treas and GEORGE C. RICHARDS asst. treas. Additional directors elected by the stockholders were R. WOLCOTT HOOKER, ROBERT E. WILKIN, FRANK W. DENNIS and ROBERT A. C. DOUGLAS. All are Hooker Chemical Corp. executives except Mr. Dougles, a Vancouver lawyer.—Charles L. Shaw.

Columbia Cellulose Names Research, Development Head

DR. J. W. WILSON, at one time a professor of forestry at the Univ. of British Columbia, has been named director of research and development for Columbia Cellulose Co. Ltd. He succeeds DR. MORRIS WAYMAN, who has joined the staff of Sandwell & Co. Ltd., consulting engineers.

Dr. Wilson has been associated with Columbia Cellulose since 1955, most recently as asst. to Dr. Wayman.

DISSTON HAS THE EDGE®



How much heat does your chipper generate?

Extensive research by Disston has shown that your chippers reach temperatures as high as 750° on the cutting edge. Disston has developed knives to withstand heat far in excess of 750° . . . resulting in continued high performance throughout their life.

Disston's Chip-Master is one example. It clears clean . . . cuts clean—without ragged edges. You enjoy a rapid flow of uniform chips, low production of costly sawdust, and long runs between sharpenings. Super-smooth grinding of the knife face means extra-clean, money-saving chipping.

See your distributor for more detailed information about the Chip-Master. Ask him about Disston's full line of top quality pulp and paper mill knives, or write to *Disston Division, H. K. Porter Company, Inc., 366 Tacony, Philadelphia 35, Pa. In Canada, Box 530, Acton, Ontario.*

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Dryden Promotes Maunsell

D. H. MAUNSELL, mill mgr. for Dryden Paper Co. Ltd. at Dryden, Ont., has been made asst. to the vice pres. and gen. mgr., J. W. WING. Named as Mr. Maunsell's successor was T. S. JONES. N. I. HOWE becomes production mgr.

Mr. Maunsell, who has served as mill mgr. since 1950, will assist in research and development plans for the company's expansion program—both in production capacity and in new products.

Mr. Jones has been Dryden's mgr. of industrial relations since 1955, and in that year Mr. Howe became gen. supt.

Pulpwood

ROBERT C. LINDSAY, protectional forester at Crown Zellerbach Corp.'s regional headquarters in Portland, Ore., becomes supt. of contract logging on the firm's Tillamook Tree Farm. . . . KINYON YOUNG, logging foreman for McCloud River Lumber Co. at McCloud, Cal., has been elected 1959-60 president of the Sierra-Cascade Logging Conference. New vice pres. is ELMER ZIMMERMAN, logging supt. for the Long-Bell div. of International Paper Co., Weed, Cal. . . . D. NELSON JEFFERS becomes staff forester for Weyerhaeuser Timber Co. in Tacoma, Wash.;

Chief Forester at Longview Fibre Co.

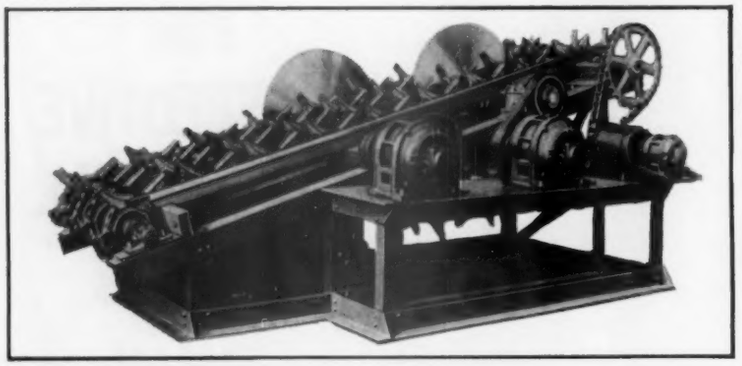
WALTER L. ROBINSON advances to newly created position of chief forester at Longview Fibre Co., Longview, Wash., moving up from tree farm supervisor. He will coordinate and supervise forestry activities on Longfibre's timber holdings, including four certified tree farms.

HOWARD W. MILLAN succeeds Mr. Jeffers as branch forester at Longview, Wash., and STANLEY E. OLSON is new branch forester at White River.

JAMES E. BARROM, formerly survey crew mgr., is named associate logging engineer for Simpson Logging Co., Shelton, Wash. . . . RUSSELL B. MCROREY, for the past four years supervisor of the Stanislaus National Forest in Sonora, Calif. joins the Portland, Ore. regional office of the United States Forest Service as deputy chief of the division of timber management, a newly established position. . . . CLYDE CORMAN, logging mgr. for Weyerhaeuser Timber Co. at Longview, Wash., has retired after nearly 40 years with the firm's timber department.

Promotions at International Paper Co.'s Long-Bell div.: W. A. ANDREASSEN, logging supt. of the Vaughan branch since 1951, becomes logging mgr. at Longview, Wash.—a new position; C. L. FOSTER becomes logging supt. and WILLIAM J. BARZIER forester, both at Vaughan. . . . New supervisor of the Willamette National Forest is DAVID R. GIBNEY, former staff asst. in the Timber Management div. at the Portland, Ore. regional headquarters of U. S. F. S. . . . JOHN G. HAMNER, Union Bag-Camp Paper Corp. forester in the Technical Control dept., has been awarded a Yale Univ. fellowship for study toward his Master's degree. . . . Ten foresters were recently elevated to the management level in Gulf States Paper Corp.: NORMAN KENT, GEORGE WOOD JR., JIMMY BEALL, GLEN BRINKMAN, WARREN GARRETT, HARRY DUNN, L. O. WRIGHT, WILLARD THOMPSON, JOHN BRISTER JR. and HOYT GRISSOM.

W. L. HARDIN, onetime district supt. of wood procurement for West Virginia Pulp & Paper Co.'s Charleston, S. C. mill, is now directing the firm's conservation and forestry relations program in South Carolina. He is succeeded by CHARLETON ELLIS. . . . JAMES MCCORMACK, chief of



MURCO **PULPWOOD SLASHER**

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A complete piece of machinery, built, erected and match-marked in our plant for erection at the mill . . . rugged and sturdy to withstand the extremely hard usage to which a pulpwood slasher is subjected . . . quick and easy change saw arbors . . . V-Belt driven saws.

The MURCO Pulpwood Slasher can be furnished with any number of saws to cut any specified length stick of any maximum diameter . . . also complete with a log haul if required . . . chain feed drive can be furnished to incorporate a multiple speed motor so that the speed of the feed can be changed if desired.

WRITE FOR QUOTATIONS

Send us the following . . . length of logs to be cut . . . desired length of logs after cutting . . . maximum diameter of logs cut . . . species of wood to be cut . . . volume to be cut in cords per hour.

MURCO equipment for pulp and paper mills includes — barking drums, multiple knife pulpwood chippers, wastewood chippers, re-chippers, chipper discs, V-type spouts and chip crushers . . . stainless steel flat screens, level vibrating double deck chip screens, knot screens . . . barking drums, hydraulic wood splitter, quick opening gate valves . . . roll heading machines, pneumatic winder shafts, mechanical winder shafts, hydraulic roll lowering tables, power dam gate hoists.

D. J. MURRAY MANUFACTURING CO.
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the division of forest economics at the Southeastern Forest Experiment Station, Asheville, N. C., died recently at the age of 46. He had been a member of the service since 1935.

MELVIN E. METCALF transfers from the Intermountain Forest & Range Experiment Station at Ogden, Utah, to the Pacific Northwest Forest & Range Experiment Station at Portland. He will head a federal forest survey program in Oregon and Washington. . . . H. O. PUHN of Simpson Logging Co., Shelton, Wash., has been reelected president of the Industrial Forestry Assn.; T. R. SHELDON of Scott Paper Co., Everett, becomes a director. . . . MERLE A. MOSAR, asst. supt. of Crown Zellerbach Corp.'s Cathlamet, Wash. div., is promoted to supt. of the Clackamas logging div. at Molalla, Ore.

A University of Washington 1957 forestry graduate, GUY R. LUSIGNAN, has joined the Simpson Paper Co., Everett, Wash. He will assist Head Wood Buyer JOSEPH ROBINSON in pulpwood procurement and woodlands management.

Crown Zellerbach Changes

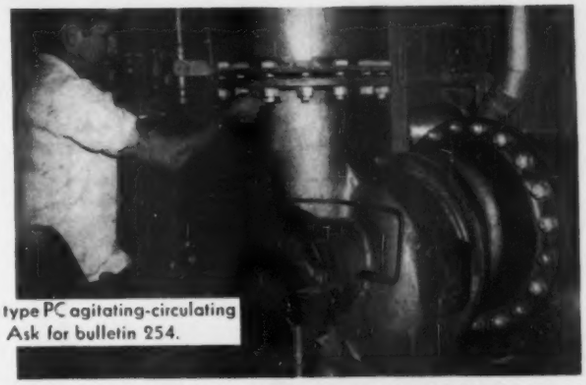
Layton ..... Hunt ..... Sinclair

Gallaway ... Benjamin ... Cullenbine

Crown Zellerbach advances officials in firm's re-alignment of executive duties and responsibilities, a move resulting from CZ's rapid growth and retirements at the top management level according to H. L. ZELLERBACH, acting bd. chrmn. (l. to r.) A. B. LAYTON relinquishes presidency to become chrmn. of newly formed finance comm.; REED O. HUNT, exec. vice pres. since 1956 becomes president and chief exec. officer; P. T. SINCLAIR, president of Crown Zellerbach Canada Ltd., Vancouver, B.C. for past three years, returns to San Francisco hdqtrs. as exec. vice pres. of CZ Corp.; G. H. GALLAWAY, asst. vice pres.-mfg., CZ hdqtrs., moves to Vancouver as president of CZ Can.; D. G. BENJAMIN, vice pres. of CZ and gen. mgr. of Western-Waxide Div., promoted to vice pres.-packaging operations; C. S. CULLENBINE, sec. of CZ advanced to vice pres.-administration and continues as secretary.

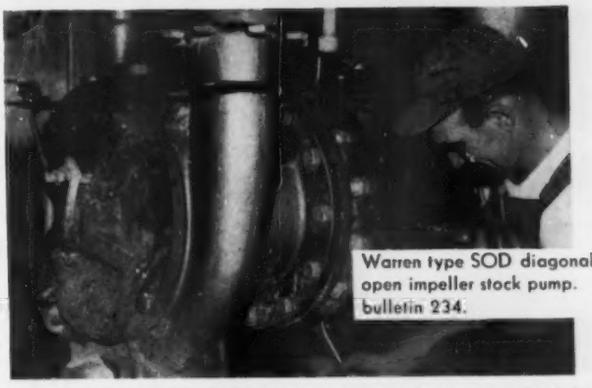
All through the New
RED BLUFF PLANT
OF DIAMOND GARDNER CORPORATION

WARREN PUMPS



Warren type PC agitating-circulating pump. Ask for bulletin 254.

HANDLE NEARLY ALL THE VITAL PUMPING SERVICES



Warren type SOD diagonally split, open impeller stock pump. Ask for bulletin 234.

THAT STRICT PRODUCTION SCHEDULES DEPEND ON

Warren type DB double suction pump. Ask for bulletins 225 and 251.

More than 120 WARREN PUMPS

are operating at the new Diamond Gardner plant at Red Bluff, California.

With the help of Warren engineers, the progressive planners of this modern integrated forest products plant selected nearly the entire range of Warren stock and water pumps. That's a sound indication of implicit trust in Warren's ability to design and produce the most efficient pumps for all types of plant services.

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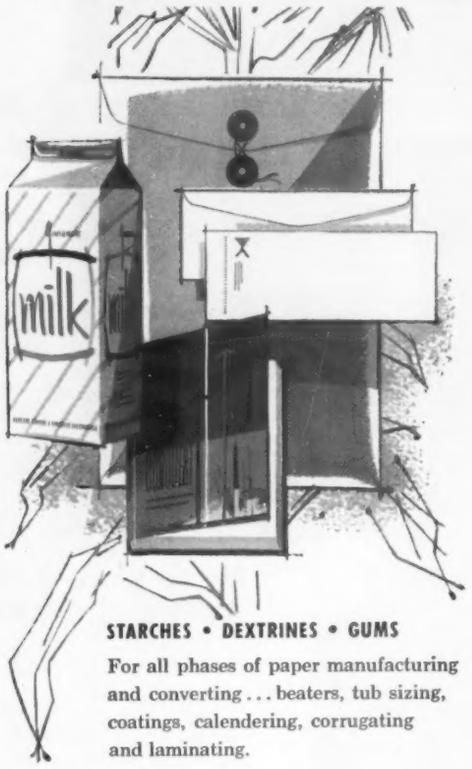
Look what happened to the corn we took off the cob



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DAYTON, OHIO 629 Storms Rd.

COLUMBUS, GA., 2319 Hamilton Rd.
SPARTANBURG, S.C., 731 Crestview Dr.
PHILADELPHIA, PA., Bourse Bldg.
NEW ORLEANS, LA., 314 Girod St.
LaGRANGE, GA., 506 Springdale Dr.
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HANCHETT CIRCULAR KNIFE GRINDER

For TOP and BOTTOM SLITTER KNIVES
SCORING KNIVES and SEGMENTS
SEMI and FULL Automatic

GUARANTEE:
1. Concentric with Bore and Running Truth .0005
2. Micro Inch Finishes
3. Grinds Single, Double and Compound Bevels
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5. Longer Mill Life (Less Changes)

MODEL SK-24 WET GRIND

TEST GRIND

We are prepared to grind knives for your inspection and Mill Test.

HANCHETT MANUFACTURING CO.
Main Office BIG RAPIDS, MICHIGAN
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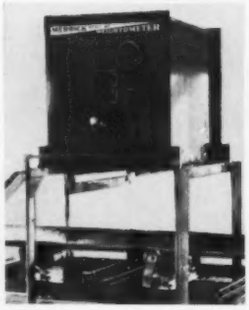
Weigh it and control it while you convey it . . . with a Merrick WEIGHTOMETER®



Merrick Type E Weightometer in typical conveyor installation.

Precise process control of conveyor-carried bulk materials is provided, *accurately and unfailingly*, by Merrick Weightometers. These automatic conveyor scales register a running total of the weight passing over them . . . can be electrically, pneumatically or mechanically coupled into completely automated systems to control anything from a single following operation to an entire production cycle.

Merrick Weightometers are available in various models for any hourly tonnage rates. Write today for bulletins and complete information.

Fifty years of "firsts" in automatic weighing

MERRICK SCALE MANUFACTURING COMPANY
180 Autumn Street • Passaic, N.J.

PULP & PAPER — Strictly Personal

Pacific

RICHARD CLARK of Weyerhaeuser Timber Co., Tacoma, Wash., succeeds CHARLES W. CRIST JR. of Scott Paper Co. as chairman of the public relations committee of the Northwest Pulp & Paper Assn.; PETER SCHNELL of Publishers' Paper Co. becomes vice chairman. . . . HOWARD W. HILEY, former asst. mgr. of industrial relations for Rayonier Inc., has been promoted to the post of mgr. of the firm's Northwest Industrial Relations div. He joined Rayonier in 1934 at the Grays Harbor (Hoquiam, Wash.) div., became asst. personnel mgr. and safety supervisor of the mill in 1942, personnel mgr. in 1944 and in 1947 was promoted to the Industrial Relations div. Mr. Hiley was made asst. mgr. of industrial relations in 1954.

Burhans-Sharpe Co. of Portland and Seattle is named agency representative for Bowen Engineering Inc.'s spray dryers in the Pacific Northwest. The territory includes Oregon, Washington, northern Idaho, Alaska and British Columbia. . . . C. H. KREIENBAUM, vice chairman of the board of directors of Simpson Timber Co., has been named to the advisory board of the Washington State Institute of Technology. . . . WALTER H. DALEY, vice pres. and gen. mgr. of Independent Paper Stock Co., San Francisco, is newly elected regional vice pres. for the National Assn. of Waste Material Dealers Inc.

GEORGE GLADDING, pulp mill super-

Boylon ..... Savage ..... Williams

Over 30 Years Service At CZ, Camas

Senior service in sulfite dept. of Crown Zellerbach Camas Div. gets recognition from (l. to r.) Res. Mgr. F. O. BOYLON presenting 30 yr. service pin to JACK V. SAVAGE, sulfite mill supt., and 35 yr. pin to FORREST E. WILLIAMS, asst. sulfite mill supt.

Meet Huyck's
SYLVESTER

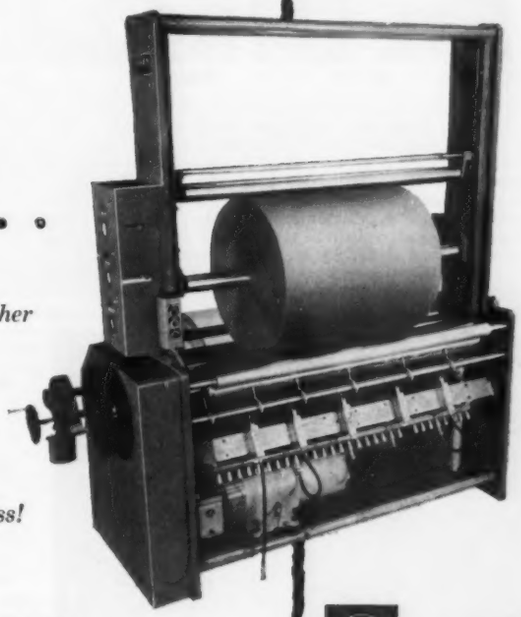
Nick Sylvester, a Senior Physicist in Huyck's Development Dept., shares with his group the responsibility for yarn analysis, felt construction and the development of new advances in the use of synthetics. A graduate of Siena College, and a "Huycker" for over 10 years, he is highly skilled in the use of the "Instron" and other modern instruments employed by Huyck to bring the benefits of the latest scientific advancements to all papermakers.

HUYCK FELTS

First in Quality . . . First in Service Since 1870

Sells for less . . .

. . . . than any other surface rewinder in its performance class!



DOVEN TWO DRUM REWINDER

• What's more, the Doven SR-60 two drum rewinder features powered feed rolls for "tacky" webs . . . A DOVEN EXCLUSIVE. Handles waxed, gummed or plain paper, paperboard, textile or rubber material to minimum of ½" slit. Furnished with score or shear slitters. Rider roll pneumatically raised and lowered.

Web sizes from 36" to 72"; takes parent rolls to 40" diameter. Optionals include parent roll capacity to 60" dia., choice of special backstand or unwind equipment, electric or mechanical drives.

Send us details of your application and samples for complete specifications and prices.

DOVEN DIVISION

APPLETON MACHINE COMPANY

APPLETON, WISCONSIN

Strictly Personal

visor of Scott Paper Co. at Everett, Wash. since 1930, retires July first. Promoted at Scott's Everett, Wash. plant: ELMER A. CHRISTOFERSON, asst. tech. control mgr.-pulp, to pulp mill shift supt., J. F. FARRINGTON to pulp mill shift supt., SIDNEY SILVERSTONE, from proj. chem. to chief process engr. directing mill process control, JAMES S. BRAWN, proj. engr., to chief proj. engr. of pulp mill tech. control dept., WILLIAM MEYER to hydro-barker wood mill supervisor.

Warren Pumps Inc. of Warren, Mass., has named two West Coast industrial sales representatives: Shoemaker Engineering Co. of Los Angeles and John H. Marvin Co. Inc., West Seattle and Portland. . . . Potlatch Forests Inc. of Lewiston, Idaho, has reelected ROBERT E. BUNDY president, E. C. RETTIG, executive vice pres. and V. V. VALLANDIGHAM vice pres. of pulp and converting. . . . LARRY LOBAN, employe relations specialist in the San Francisco headquarters of Crown Zellerbach Corp., has been appointed by California GOV. EDMUND G. BROWN to serve on the state-wide Committee for the Employment of the Handicapped. . . . Dr. W. W. MOYER, director of research for the Central Research dept. of Crown Zellerbach Corp., Camas, Wash., has returned to work following surgery.—Louis H. Blackerby.

Speidel ..... Grannis

Public Relations Changes at Crown Zellerbach

CONRAD SPEIDEL has been named mgr. of information services in the Public Relations dept. of Crown Zellerbach Corp., San Francisco. He is succeeded as mgr. of publications and graphic services by GORDON E. GRANNIS.

Boylon ..... Butler

CZ Promotions

F. O. BOYLON, (left) res. mgr. of Crown Zellerbach Corp. mill at Camas, Wash. since 1956, becomes asst. vice pres.-mfg. at CZ San Francisco hqtrs., R. A. BUTLER, formerly asst. res. mgr. at Camas, succeeds Mr. Boylon as res. mgr.

Corrosion Engineers Polish Off Problems

Read ..... Burgan ..... Shimmin ..... Hudrlik ..... Beisse

Industry's corrosion problems polished off at Portland, Ore. meeting of Natl. Assn. of Corrosion Engrs. by symposium panel consisting of (l. to r) E. M. READ, JR., pulp mill engr., Longview Fibre Co., Moderator DEAN D. BURGAN, supervising metallurgist, Electric Steel Foundry Co., WM. R. SHIMMIN, process engr., Crown Zellerbach Corp. Camas Div., OTTO HUDRLIK, area mgr. for Flox Div. National Aluminate Corp., GEO. H. BEISSE, engineering dept., Pulp Div. Weyerhaeuser Timber Co., Longview. A serious factor in all pulping processes, corrosion costs approximate the industry's payments for state and local taxes, states Mr. Burgan. A well developed corrosion prevention program staffed by competent personnel can be expected to (1) increase profits, (2) minimize non-planned production interruptions, (3) reduce product loss, (4) improve quality, (5) extend equipment life.

(ADVERTISEMENT)

SANDWELL INTERNATIONAL RESEARCH APPOINTMENT

Dr. Morris Wayman

Paul E. Cooper, Executive Vice-President of Sandwell International Limited, announces the appointment of Dr. Morris Wayman, Ph.D., B.A., F.C.I.C., as Research Director. A Member of the American Chemical Society, TAPPI, Technical Section CPPA, Dr. Wayman is the author of many technical articles and the holder of ten patents. Latterly he has been Technical Director for Columbia Cellulose Co., Ltd., Prince Rupert, B.C.

Increase Paper Production with DUPASQUIER DRIPLESS STEAM SHOWER BOX

- Preheats the Web
  U. S. patent 2,838,982.
- Changes Water Viscosity
  THUS FREEING WET MAT
- Allowing Speed Increase

Custom Built for Any Machine
Write for Illustrated Folder

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Canada Pat. 1955
Other pat. pdg.

Briggs .... McEwen .... Weleber ....Bialkowsky .... Enghouse .... Lea .... Coster .... McGregor .... Fahlstrom

PAST CHAIRMEN OF TAPPI's PACIFIC SECTION HONORED AT 30th anniversary meeting held in Camas, Wash., (l to r): B. T. Briggs (1956-57), Rayonier Inc., Shelton, Wash.; J. M. McEwen (1955-56), Weyerhaeuser Timber Co., Everett; F. J. Weleber (1953-54), Publishers' Paper Co., Oregon City, Ore.; H. W. Bialkowsky (1945-46), Pulp div., Weyerhaeuser Timber Co., Longview, Wash.; C. A. Enghouse (1943-44), Crown Zellerbach Corp., West Linn div.; N. S. Lea (1958-59), Scott Paper Co., Everett; N. W. Coster (1938-40), Scott Paper, Everett; G. H. McGregor (1938), Crandon Paper Mills, Ft. Madison, Iowa, and Carl Fahlstrom (1937), retired from Longview Fibre Co. and now a consultant.

Caskey ..... Walseth

TAPPI Testing Conference Aug. 17-21 in Portland

Preparing 10th TAPPI Testing Conference to be held Aug. 17-21 at Multnomah Hotel, Portland, Ore (l. to r.) RANK E. CASKEY, mgr. tech. sls. & service, Morden Machines Co., heads local arrangements committee; C. S. WALSETH, tech. dir. of Weyerhaeuser Timber Co. Pulp Div., Cosmopolis, Wash., officiating as gen. chairman.

Johnson Zonner Streaker O'Nesky Giersch

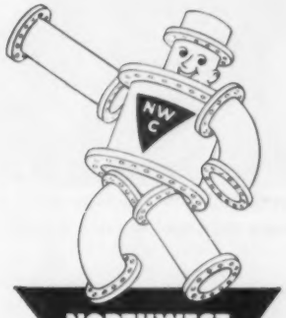
Streaker is New Chairman of So. California Group

WILLIAM J. STREAKER of Fibreboard Paper Products Corp. is the new chairman of Papermakers & Associates of Southern California. He was installed recently at the group's annual election.

Mr. Streaker succeeds DR. LAURON GIERSCH of Crown Zellerbach Corp. At the same time, L. JOHNSON of Continental Can Co. Inc. became vice chairman and A. J. O'NESKY of Fibreboard secretary-treasurer.

Two new members of the executive board were appointed during the session: AL MAYS of Container Corp. of America and LEON CHRISTENSON of United States Gypsum Co. WILLIAM J. ZONNER of National Starch Products Inc. replaces RUSSELL GAGNIER of Nopco Chemical Co. as program chairman.

CUSTOM FABRICATIONS



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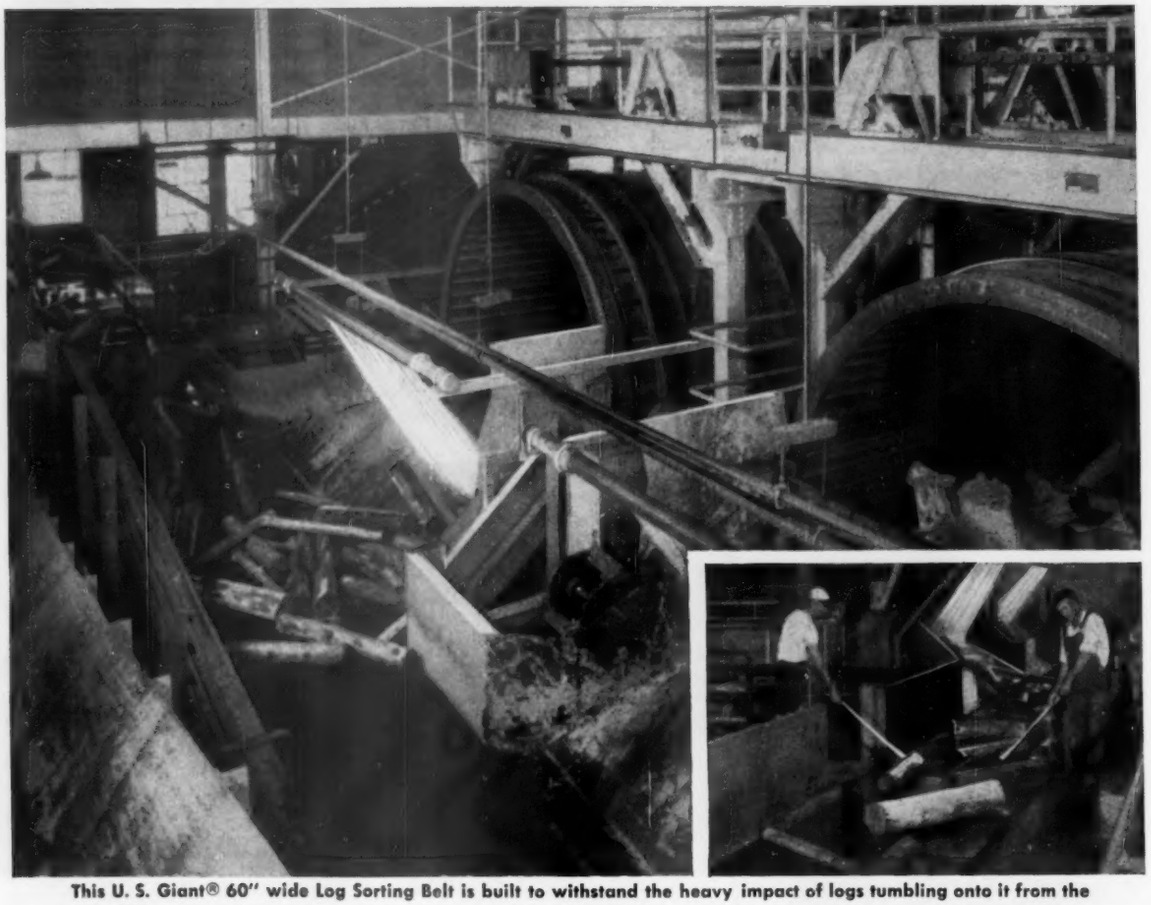
US RUBBER Conveyor Belts

Logging a new record!



This U. S. Giant® 60" wide Log Sorting Belt is built to withstand the heavy impact of logs tumbling onto it from the debarking drums (left) and to resist the sharp points of the pickaroons which the men use to sort out rejects (right).

When the Mosinee Paper Mill Company, Mosinee, Wisconsin, required a conveyor system to step up production of wood and pulp, they turned to the company that had helped with the same problem on many installations in the United States and Canada—U. S. Rubber.

"U.S." engineers studied the requirements, the mill layout, and—above all, the problem of costs. Eight "U.S." conveyor belts were installed, made endless on the job. Production went up to a new record for the log-sorting operation of Mosinee Mills.

The easiest and most economical way to increase haulage and to lower costs is to enlist the services of United States Rubber conveyor belt engineers. Their wide and varied experience in materials handling for the wood products industry allows them to give you the very best help obtainable.

• • •

When you think of rubber, think of your "U. S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and the finest quality industrial rubber products.

US RUBBER Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

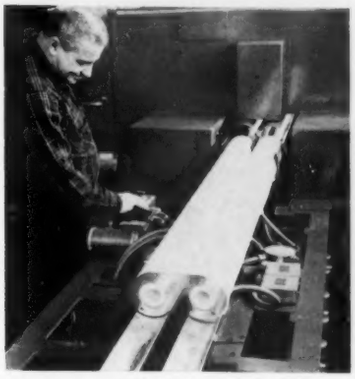
Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

New Equipment Section

Eccentric Valves
. . . with Plastic Coating

Applications: For pulp and paper stock, white water, cooking liquor and corrosive chemicals.
Advantages: Coatings are said to increase corrosion resistance of a cast iron valve with slight price increase.
Specifications: Coatings are put in iron valves by an inexpensive method and can be used in place of ni-resist, bronze, acid resisting bronze or stainless steel valves.
Supplier: **DeZurik Corp., Sartell, Minn. Phone: St. Cloud, Minn. BLackburn 1-0221.**

"Double Barrel" Log Cutter
. . . For Toilet, Toweling Rolls



Application: Slices long rolls of toilet or toweling into household sizes.
Advantages: Full automatic device with double cut feature permits machine to turn out 160 rolls/minute.
Specifications: It saws double sets of rolls simultaneously from the ends of the logs by a toothless band knife which actually makes four separate cuts—two on each roll—on the down stroke. By cutting four rolls at a time at 9-in. intervals the clamping vice can achieve additional "bite". The cutter clamps the parent roll for the full 9-inches and over 360°. The machine also features automatic self-sharpening of the band knife without down time.
Supplier: **Appleton Machine Co., Appleton, Wis.**

Enclosed Pressure Screen
. . . Available in Smaller Model

Applications: For removal of shives and specks ahead of smaller Fourdriniers and on cylinder machines requiring a cylinder for each mold.
Advantages: Model 10 handles approximately half the capacity of the Model 14 or about 2500 gpm or more.
Supplier: **Bird Machine Co., South Walpole, Mass.; MOntrose 8-0400.**

Portable Debarker
. . . will handle frozen logs

Applications: For debarking pulpwood in the woods.
Advantages: According to the Swedish manufacturer, the unit handles crooked as well as straight logs with or without knots. The wood may be either freshly cut or stored. Both bark and bast are removed without loss of wood.
Specifications: The wheel-mounted debarker will handle logs of from 2½- to 14-in. diameter and will debark from 3 to 8 cords per hour depending on species and size and whether the unit is hand- or conveyor-fed. The tension of the rotating knives is adjusttable and can be changed in a few minutes. The motor driving the debarker delivers 20 to 25 hp and is equipped with variable-speed automatic feed rolls on both sides of the debarking rotor. The rotor contains six debarking tools. Weight of the machine is 4,850 lb.
Supplier: Export AB Linex, Riddargatan 45, Stockholm, Sweden; and Frick Co., West Main St., Waynesboro, Pa. (U.S.A. distributor).

Magnetic Pulleys
. . . Full Range of Ceramic Types

Applications: For detecting tramp iron on conveyor belts.
Advantages: Ceramic-powered, radially designed pulleys are more powerful and the magnetic poles extend around the circumference resulting in a field that varies across the face, being most highly concentrated at the poles. It is more effective in removing medium and large tramp iron, especially at higher belt speeds.
Supplier: **Eriez Mfg. Co., Erie, 6 Penna.**

Double Seal Ball Valve
. . . for Digesters

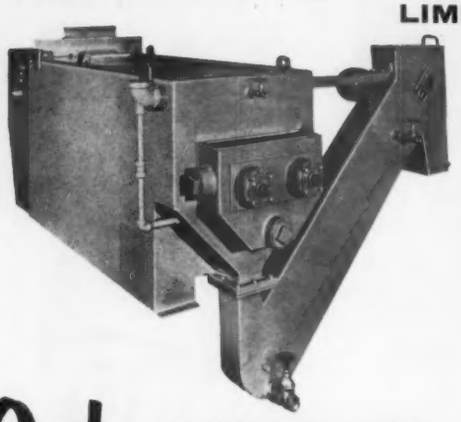
Applications: For use in digester blowdown installations in pulp mills.
Advantages: Said to eliminate need for a steam tracer line and has proved successful in extensive tests.
Supplier: **Jamesbury Corp., Worcester, Mass.**

Timing Belt Drive
. . . Wide Application Range

Applications: Suitable for a wide range of loads, from sub-fractional to 600 hp and makes possible a range of speeds from 0 to over 16,000 fpm.
Advantages: Timing belt does not depend on friction, therefore does not need high initial tensions. Small pulleys, short centers, narrow belts and high capacities are all inherent features.
Specifications: "Time-Tex" timing belt drive is constructed with steel cable cords embedded in neoprene fully molded with nylon base fabric and combines advantages of ordinary "Texrope" drives with those of chain and gear without slip, metal to metal contact, stretch and lubrication.

Supplier: **Allis-Chalmers Mfg. Co., Milwaukee, Wis.**

Specify
VISCOMATIC®
LIME SLAKERS!



CUT SLAKING TIME

SAVE ON LIME

Only INFILCO

has the experience gained from the manufacture and installation of many automatic torque controlled constant viscosity lime slakers.

PROVED IN PERFORMANCE

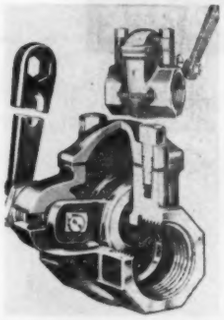
The "VISCOMATIC" Slaker slakes lime as a paste with true pug mill action...slakes fast with cold water... provides maximum hydrate availability.

Torque actuated water controller maintains uniform viscosity...provides uniform strength slurry...eliminates temperature controls, water metering and insulation.

Write for INFILCO Bulletin 255. It describes the "VISCOMATIC" Lime Slaker and its utilization in water, waste, and process applications.

INFILCO INC.
General Offices—Tucson, Arizona
Field offices throughout the United States and other countries.

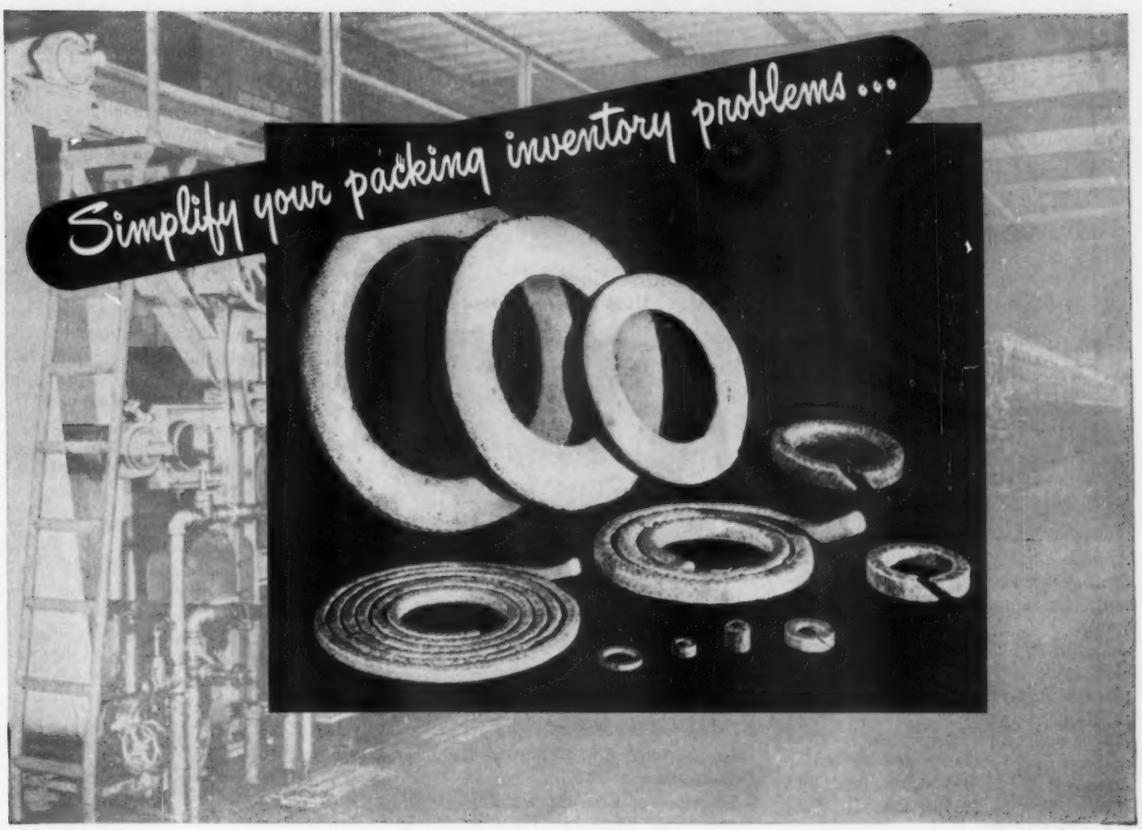
Gate Valve Redesigned
. . . Has New Features



Applications: Water, oil and low pressure steams.
Advantages: Provides tight shut-off against flow from either direction; yet affords quick and easy operation.
Specifications: Valve features a ball-and-socket joint between self-adjusting disc faces, and accurate guiding, which assures flexibility for pressure-tight seating. A deep stuffing box effectively seals the operating stem while permitting easy operation. Cap is bolted down with two cap screws, making disassembly and reassembly faster and simpler.
Supplier: **Lunkenheimer Co., Cincinnati 14, Ohio.**

Gear In-Line Reducers
. . . Rated at 200 hp

Application: For power transmission and are said to be largest standard speed reducers produced.
Advantages: Double, triple and quadruple reductions are available in AGMA ratios up to 440 to 1. Final stage helical gearing is carburized and hardened, and gear teeth are precision ground for increased load-carrying capacity, reduced vibration and noise, longer life and space savings.
Supplier: **Philadelphia Gear Corp., 3620 G. St., Philadelphia 34, Pa.; WAlnut 2-2635.**



Johns-Manville CHEMPAC® PACKING withstands active acids and alkalis

CHEMPAC is a new Johns-Manville Packing which combines the sealing action and heat-resistance of asbestos with the all-around chemical resistance of Teflon*. Because of its versatility Chempac greatly reduces the number of packing styles needed for mill equipment. Moreover, stocking and inventory present no problem because the inert ingredients of Chempac do not deteriorate.

Chempac is outstanding in service against most acids and alkalis at temperatures to 500°F. It is especially recommended for use in pumps handling calcium bisulfite cooking liquor, sulfurous acid and relief gases . . . on relief valves on sulfite digesters . . . on valve stems exposed to chlorine, and for other equipment in service against corrosive liquids.

Chempac Packing is available in coil, spiral and ring form for rod, plunger and valve stem applications. Johns-Manville also manufactures Chempac Gaskets, made of plies of asbestos cloth treated with Teflon.

Your Johns-Manville Packing Distributor can help you select the right Chempac Packing or Gasket for your application. Or write Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario. Ask for PK-124A.

*Trade mark for DuPont Tetrafluoroethylene resin

Pioneer in packings for over 100 years

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville PACKINGS & GASKETS

PULP & PAPER Equipment & Supplies

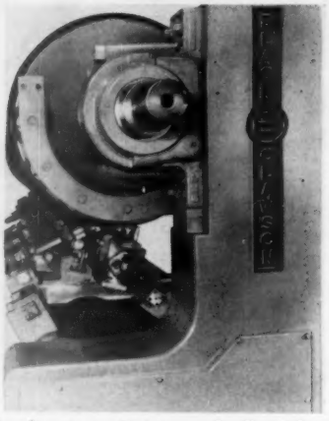
Proportioning Pump
. . . for Chemical Feeding

Applications: For accurate and uniform proportioning of chemical solutions, acids and alkalies to process water.
Advantages: The Chem-O-Feeder is electrically driven with positive displacement and features a corrosion-resistant transparent plastic head, Hypalon diaphragm and check valves and a straight-through flow design.
Supplier: **B-I-F Industries, Inc., 345 Harris Ave., Providence 1, R.I., GAspee 1-4302.**

Heavy-Duty Industrial Truck
. . . with Paper Roll Attachment

Applications: For handing 5,200-lb. 60-in. diam. paper rolls in loading and unloading in confined areas.
Advantages: The new GLF-80 heavy-duty Dynamotive industrial truck is 8 in. shorter than the standard unit. Maneuvering in the narrow interiors of boxcars, for instance, is greatly simplified.
Supplier: **Automatic Transportation Co. (div. of Yale & Towne Mfg. Co.), 149 W. 87th St., Chicago 2, Ill., Tel: RAdcliffe 3-7000.**

New Blade Coater
. . . Uses Inverted Steel Blade



Applications: For on and off-machine clay coating.
Advantages: Coating weight can be varied and controlled by adjustments while machine is running.
Specifications: The Flexiblade features an enclosed fountain and positive feed of coating. Unit can be operated with either a positive feed or recirculation of the coating. Coating chamber is accessible for rapid blade change and clean-up and machine is operable over full range of paper machine speeds. This coater uses an inverted flexible steel blade to deliver a smooth pattern-free coating. It handles high solids coating. A pilot size coater is available for research and demonstration.
Supplier: **The Black-Clawson Co., Dilts Div., Fulton, N.Y.; GArdner 2-4561.**

LITERATURE

Centrifugal Pulp Screen

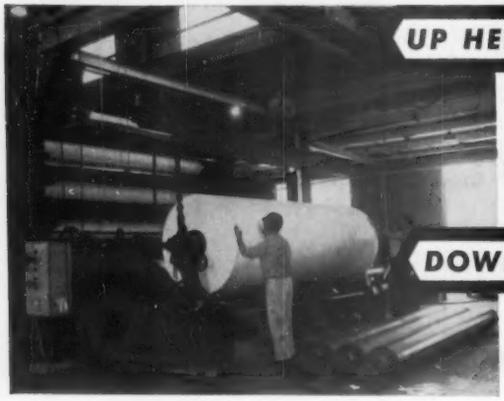
The new Impco centrifugal pulp screen is featured in bulletin B2-1. Application is for high quality final screening of premium grades of unbleached, bleached and dissolving pulps. Features: one simple shaft; no stuffing glands; 500,000 hour life, heavy duty roller bearings; cushion-mounted screen plates; round inlet and outlets; bottom accepted stock outlet permits all sub-floor piping; new rotor increases capacity without additional horsepower and accessible rejects sampling outlet away from V-belt drive. Contact Improved Machinery Inc., Nashua, N.H.

Index of M-H Literature

A 24-page bulletin describes literature published by the Industrial & Valve div., Minneapolis-Honeywell Regulator Co. Instrumentation publications covered include product catalogues, specification sheets, technical bulletins, industry bulletins, systems bulletins and data sheets. A special section indexes instrumentation magazine articles. Educational aids and other Honeywell services and literature are described. Bulletin G2-1a may be obtained from any M-H branch office or from the Industrial div., Wayne and Windrim Aves., Philadelphia 44, Pa.

Motor Selector

Bulletin B-2103-4 gives selection data to users of a. c. motors of from 1 to 200 hp. Included in the 12-page booklet are explanations of NEMA design classes, speed-frequency relationship, current and torque values, as well as frame selection tables and dimension information for standard frames and mechanical modifications for all frame sizes from 182 through 6085. The bulletin may be obtained through Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, O.



UP HERE, there's A EUCLID CRANE

Placing Cores on the Paper Winder

DOWN HERE

This essential paper mill operation is made easier and accomplished quicker with the aid of a precision control Euclid Crane.

Directly behind the large sheet roll of paper are three more cores ready for placement on the winder.

Paper mill cranes are a specialty of ours. We can build them to meet your general or specific handling needs. For stand-by or continuous service. Any capacity, any control system.

That's why an ever increasing number of paper mills are specifying EUCLIDS.

for details write THE EUCLID CRANE & HOIST CO.
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APPLETON WIRES ARE GOOD WIRES

The newspaper is a powerful molder of opinion and an important tool of mass communication. Newsprint for many influential newspapers throughout the country is formed on Appleton wires, specifically made for high-speed newsprint machines. Long-wearing, perfectly woven Appleton wires have passed a 63 year test-of-acceptance by the industry. Condensor paper, newsprint, writing paper or pulp, there's an Appleton wire to fit your manufacturing requirements. Ask your AWW representative. **APPLETON WIRE WORKS CORPORATION, APPLETON, WISCONSIN.** Plants at Appleton, Wisconsin and Montgomery, Alabama. International Wire Works, Menasha, Wisconsin, an affiliated company.

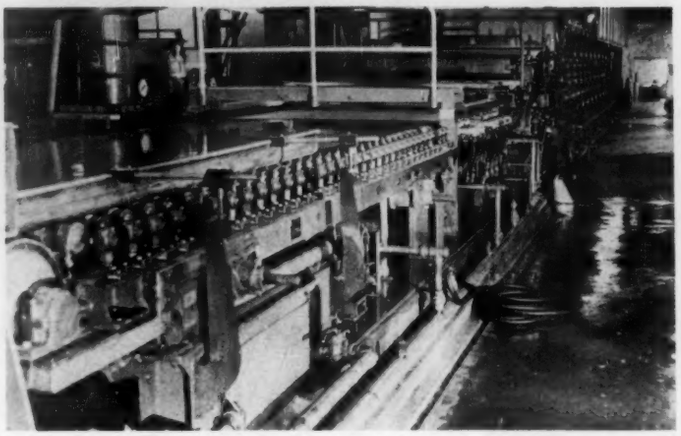
Appleton Machine Establishes Winder-Slitter Laboratory

. . . at Appleton, Wis., to test paper, textiles, leathers, synthetic fabrics, plastics and other materials and to develop improved methods of slitting and winding. The facility is operated by the Doven div., and service is offered without charge to any firm sending a sample of the material to be tested along with specifications for slitting and winding.

Research equipment is capable of slitting material into rolls measuring from ⅛ to 60 in. in width.

Shown at the new laboratory (above) are a portable core cutter, a bench-type rewind slitter and a two-drum slitter and rewinder.

Lachute Rebuild Increases Grade Variety

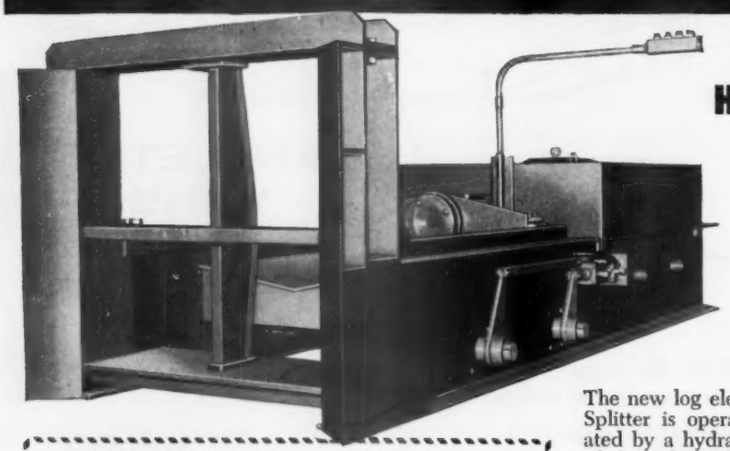


No. 4 paper machine at the Lachute, Que. mill of J. C. Wilson Ltd. is now operating at speeds up to 500 fpm following a rebuild by Dominion Engineering Co. Ltd. Tonnage has been increased about 25%, and heavier kraft specialty grades are now produced.

Included in the complete renovation were a new Fourdrinier, couch, additional dryers, reel, winder and complete drive; a 1500-kva transformer addition; piping and stock preparation changes and installation of stainless steel throughout; addition of primary and secondary Bauer Bros. Centri-Cleaners; additional refining equipment; rebuilding of the slice from a vertical to a sloping type.

Two existing calender stacks were reconditioned by Dominion Engineering and a new Dominion pope type reel installed.

NEW! Log Elevator Mechanism



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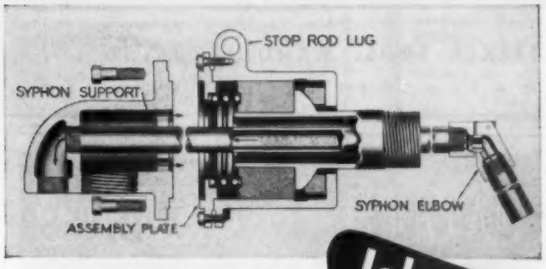

Type SDP shown. Hinged syphon elbow replaces unwieldy curved syphon pipes with two straight pipes. Newest Johnson development is the Quick Release nipple. Write for Bulletin S-3001.

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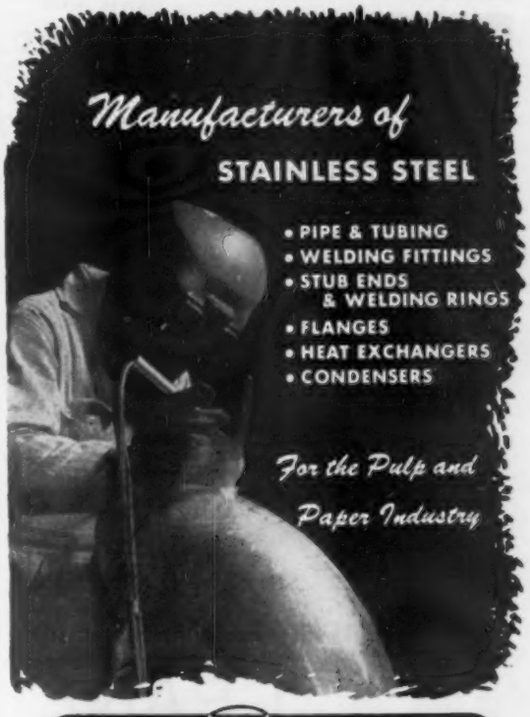

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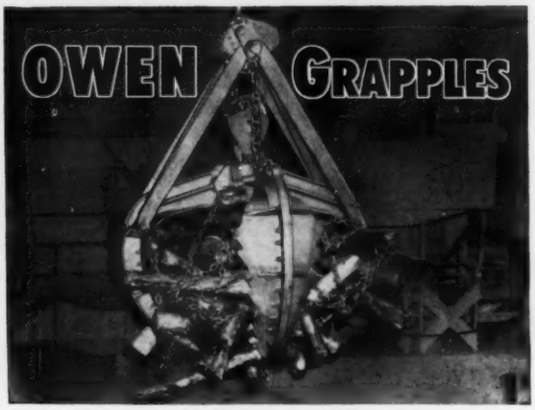

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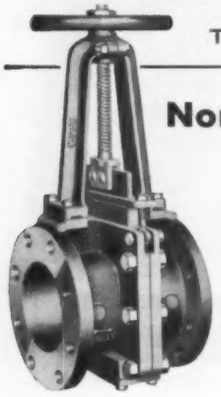

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The Last Word PULP & PAPER Editors' Page

A Report From Soviet Russia

There is a special significance in the second report from our traveling Editor Al Wilson in this issue. Mr. Wilson's trip to the Soviet Union is not just that of another tourist but rather of a keen observer of the pulp and paper scene. A trained and experienced reporter with a sharp analytical mind, Mr. Wilson knows the right questions to ask and also knows when he gets the right answers.

His report on Russia has special significance because it is the first time a PULP & PAPER editor has been inside the Soviet Union, visited some of its paper mills and talked to many of the pulp and paper leaders. In his report Editor Wilson offers some refreshing observations. After reading it, you will feel that you have been at his side as he sat and chatted at the conference table with the Russian leaders, rode the Russian taxicabs and subways and visited some of the Soviet paper mills.

There has been much guesswork on the plans of the Soviet pulp and paper industry. We think this report will help to draw back the paper curtain and show where the Soviet's pulp and paper industry now stands and where it hopes to be some 10 years from now.

Shhhhhh . . . Coating Secrets

In the corridors of the Boston Coating Conference we heard much talk about the many secrets in the coating industry. This segment has been the last to share its knowledge and we thought perhaps we might ask you a rhetorical question or two.

As we mention in our Coating Conference report in this issue, the trailing blade coater has swept the industry like a forest fire. If you think back a few years to the time Blandin Paper Co. announced its trailing blade coater you will recall that until then there was very little known about this coater. Mills using this process were very hush-hush. Blandin opened wide the door. As a result, the entire industry gained and so, too, has Blandin. In that same period the industry has made a tremendous stride in coating and judging from the present tempo will make even greater progress. We shudder to think of what the present position of the coating industry might be had there not been this exchange of information on the trailing blade coater, for example.

Any coating man will tell you that all you have to do is let another competitor stand 50 feet from your coater and he knows all he wants to know. We were in a coating mill a few weeks ago and on the side of the experimental coater saw this sign: "If you can read this, you're standing too close."

There are some companies who take a coater, make a slight change, and then put a tight clamp of secrecy on it. This is true in other industries, too. A friend of ours visited a plastic plant some weeks ago and was shown some very secret processes. The next week he was in another plant, and was shown the very same "secrets."

And speaking of secrets, we were told this story recently. In a specialty paper mill in Massachusetts, the backtender came up with an idea for taking the wrinkle out of the sheet. He put this device on the machine during his tour, would secretly remove it just before his relief came on. Quite unknown to him the second shift man, also came up with identical idea and he went through the same rigamarole. Even the third shift man thought of the same device. For months each man would furtively put his secret weapon on the machine, take it off. The idea was the bowed roll, the same principle employed by the Mt. Hope expander rolls.

About all these secrets: who is kidding whom?

It's a Grand Old Industry

It is not long after he gets paper fibers all over his clothes that a neophyte in the paper industry begins to feel that there is something special about this industry. This is a comment often heard by the editors of PULP & PAPER in our endless round of mill visits and industry meetings.

For instance, we were very much impressed and edified by the luncheon talk that M. C. McDonald, president of Great Northern Paper Co., made to students at the University of Maine on the occasion of the Pulp and Paper Foundation Days last May. Looking out over the young, eager faces, Mr. McDonald said, ". . . one thing I am sure of, I wouldn't have wanted to earn my living outside of our industry. I wish I could trade places with you, because I'd like to spend another 40 years in pulp and paper." What finer tribute could any industry ask?

Another such gentleman who gives the industry the stature it has is James Good Conley, recently retired general sales manager of Fraser Paper, Ltd. To many an impatient college youth, anxious to start at the bottom of the ladder as assistant to the president, JGC was father confessor, confidant and friend. He would spend hours explaining to such a youth that the true road to success was a hard road to travel and to clinch the argument would point to his own struggle.

In our small way we would like to say, "Well done, Mr. Conley," and to thank him and all those in this industry of ours who will take the precious time to counsel younger men on the way up.

"A Most Peculiar Situation"

A. L. Strand, president of Oregon State College, points out shortage in fundamental research effort:

"The proportion of research funds made available for forest research—in comparison with agriculture—is a mere pittance, whereas the income from Oregon forestry is twice as great as from agriculture. . . . This is a most peculiar situation for the leading forestry state in the nation."

In how many other states may this same shocking observation be made!

More About Research

It is not unusual for research to be done on an industry's products. But we do believe it is unusual (and also commendable) for an industry to research its customers' products.

We're referring to the Newsprint Information Committee's plans to underwrite a major research project on behalf of newspaper publishers to explore new dimensions of impact of newspaper advertising upon consumers.

With so much emphasis upon research, new products and new markets, this action of the Newsprint Information Committee (whose membership comprises Canadian newsprint producers) may be worth a second glance or two by other pulp, paper and paperboard groups.

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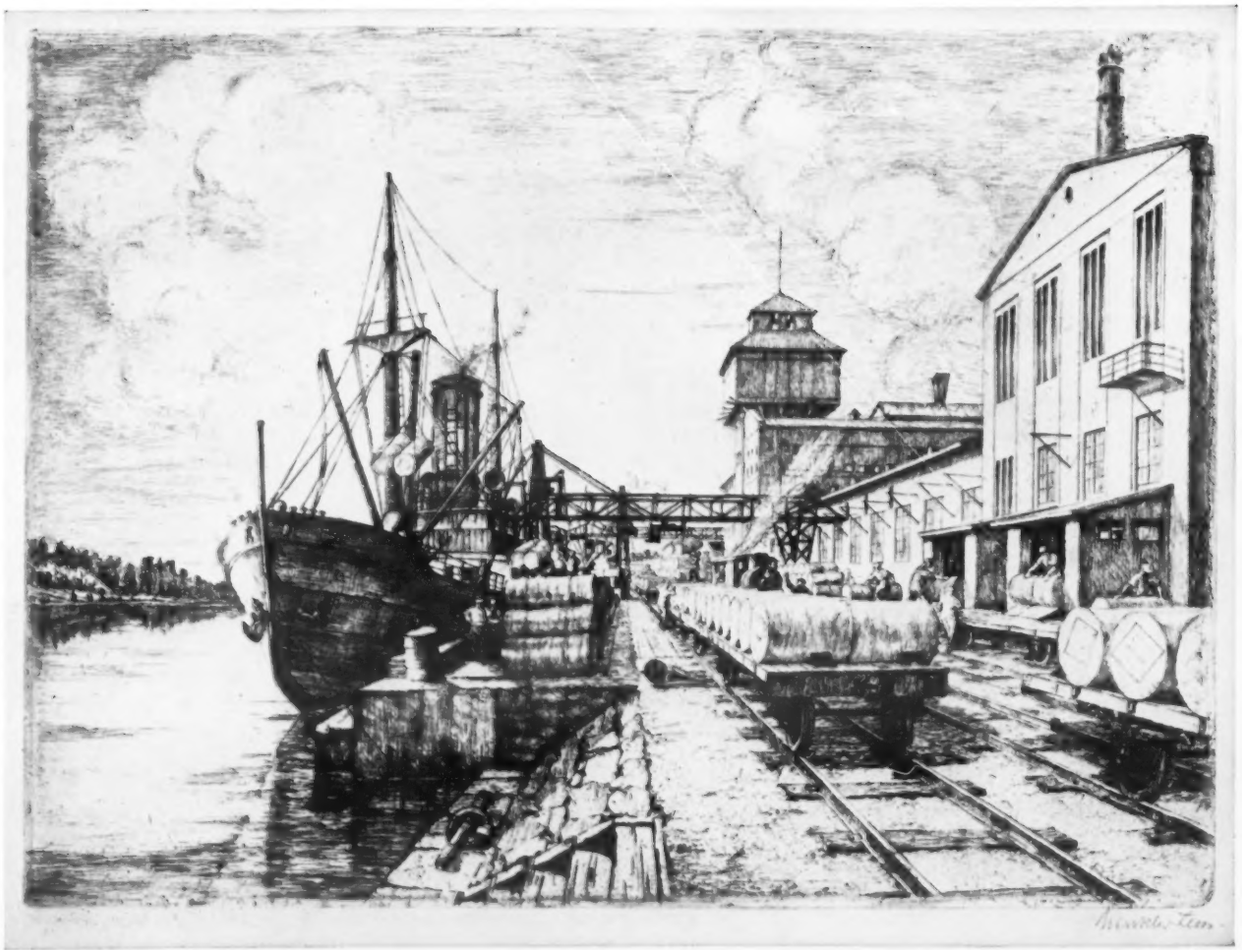

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